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ARISTOTLE.

By GEORGE GROTE, F.R.S.,

ESQ. OXFORD, AND LL.D. CAMBRIDGE;
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ARISTOTLE.

CHAPTER IX.—*continued.*

TOPICA.—*continued.*

VI.

We now enter on the Sixth Book, containing the *Loci* bearing on Definition. In debates respecting Definition, there are five points on any of which the attack and defence may turn :—^a

1. That which the definer enunciates as a definition may not be true at all, even as a predicate of the definiend or subject to be defined; or at least not true of every thing that bears the name of the subject.
2. The definiend may have been included in a genus, but not in that genus to which it rightly and specially belongs.
3. The definition given may not be specially appropriate to the definiend (*i.e.*, it may include, not only that but, other matters besides).
4. The definition, though unobjectionable on any of the above three grounds, may nevertheless not declare the Essence of the definiend.
5. Lastly, the definition may be good in substance, but badly expressed or set out.

^a Topica, VI. i. p. 139, a. 24-35 : τῆς δὲ περὶ τοὺς ὅρους πραγματείας μέρη τέτταρ' εἰσὶν.

As to the first of these five heads, the *Loci* bearing thereupon have already been enumerated in the Third Book, on Accident: in accidental predications the question raised is always about the truth or falsehood of the predication.^a As to the second and third of the five heads, these have been dealt with in the Fourth and Fifth Books, enumerating the *Loci* on Genus and Proprium.^b

There remain the fourth and fifth heads, on which we are about to enter: (1) Whether the definition is well expressed or set out (the fifth head); (2) Whether it has any right to be called a definition at all, *i.e.*, whether it declares the Essence of the subject (the fourth).^c The fifth is taken first, because to do a thing well is always more difficult than to do it simply, and is therefore likely to afford greater opening for argumentative attack.

The definition, while unobjectionable in substance, may be badly set out in two ways. First, it may be indistinct in terms—not plain nor clear. Next, it may be redundant: the terms may include more than is required for the definition. Under each of these defects of expression several *loci* may be indicated.^d

1. Indistinctness may arise from the employment of equivocal terms in the definition. Or it may arise from the term to be defined being itself equivocal; while the definer, taking no notice of such equivocation, has tried to comprehend all its senses under one and the same definition. You may attack him either by denying that the definition as given covers all the different meanings of the definiend; or you may yourself distinguish (which the definer has omitted to do) these different

^a Topica, VI. i. p. 139, a. 36.

^b Ibid. b. 3.

^c Ibid. b. 6.

^d Ibid. b. 12-18.

meanings, and show that none of them or few of them are covered by the definition.*

2. Indistinctness may arise from defining by means of a metaphor; but Aristotle treats you as a caviller if you impugn this metaphor as though it were *proprio sensu*.^b He declares it to be wrong, but he seems to think that you ought to object to it at once *as a metaphor*, without troubling yourself to prove it inappropriate.

3. Indistinctness will arise if the terms of the definition are rare or far-fetched or founded upon some fact very little known.^c Definitions given by Plato are cited to illustrate this.

4. Indistinctness arises from the employment of a poetical image, which is even worse than a professed metaphor: as where law is defined to be—a measure or image of things by nature just.^d

5. The definition is indistinct, if it does not, while making known the definiend, make clear at the same time its contrary.^e

6. The definition is also indistinct if it does not, when enunciated, make known what the definiend is, without requiring that the definiend itself shall be

* Topica, VI. ii. p. 139, b. 19. ὁμοίως δὲ καὶ εἰ τοῦ ὀριζομένου πλεοναχῶς λεγομένου μὴ διελὼν εἶπεν· ἀδηλον γὰρ ὅποτέρου τὸν ὅρον ἀποδίδωκεν, ἐνδέχεται τε συκοφαντεῖν ὥς οὐκ ἰφαρμύττοντος τοῦ λόγου ἐπὶ πάντα ὧν τὸν ὀρισμὸν ἀποδίδωκεν.

The term *συκοφαντεῖν* surprises us here, because the point under consideration is indicated by Aristotle himself as a real mistake; accordingly he ought not to characterize the procedure whereby such mistake is exposed as *mere cavil*—*συκοφαντία*. Alexander, in the Scholia (p. 287, b. 1, Br.), says that Aristotle intends to apply the term *συκοφαντεῖν* to the

respondent who advances this bad definition, not to the assailant who impeaches it. But the text of Aristotle does not harmonize with this interpretation.

^b Ibid. b. 32: ἐνδέχεται δὲ καὶ τὴν μεταφορὰν εἰπόντα συκοφαντεῖν ὥς κυρίως εἰρηκότα. Here again we have the word *συκοφαντεῖν* to designate what seems a legitimate mode of argumentative attack.

^c Ibid. p. 140, a. 3: πᾶν γὰρ ἀσαφὲς τὸ μὴ εἰωθός.

^d Ibid. a. 6-17. χεῖρον ὅποιονοῦν τῶν κατὰ μεταφορὰν λεγομένων.

^e Ibid. a. 18.

expressly enunciated. The definition by itself ought to suggest at once the name of the definiend. Otherwise, the definer is no better than those archaic painters, who, when painting a dog or a horse, were compelled to write the name alongside in order that the animal might be recognized.*

Such are the *Loci* regarding Indistinctness in the setting out of the definition. The second defect is Redundancy.

1. Redundancy will arise if the terms of the definition include either all things absolutely, or all things contained in the same genus as the definiend; since the definition ought to consist of a generic term to discriminate the definiend from all extra-generic things, and a differential term to discriminate it from other things within the same genus. A definition of the kind mentioned will be useless through redundancy.^b It will also be open to the like objection, if it includes what is merely a proprium of the definiend, over and above the essential attributes; or, indeed, if it includes any thing else except what is required for clearly bringing out the definiend.^c It will be still worse, if it comprises any attribute not belonging to all individuals of the species; for then it will not even be a proprium or a reciprocating predication.^d

2. Repetition is another fault sometimes committed. The same attribute may be predicated twice over. Or

* Topic. VI. ii. p. 140, a. 20. This last condition is a high measure of perfection to exact from a definition. Assuredly, Aristotle's own definitions often fall lamentably short of it.

^b Ibid. iii. p. 140, a. 23-32. Alexander, however, remarks very pertinently, that the defects of such a definition are defects of substance rather than of expression. Aristotle

has passed unconsciously from the latter to the former: ἐν μὲν τῇ πρώτῃ τῶν ἐφόδων δόξειεν ἂν ὁ Ἀριστοτέλης μετὰ γινεῖν εἰς τὰς πραγματικὰς ἐξετάσεις (Schol. p. 287, b. 27, Br.).

^c Ibid. a. 37: ἀπλῶς δ' εἰπεῖν, ἀπαπερίεργον οὐ ἀφαιρεθέντος τὸ λοιπὸν δῆλον ποιεῖ τὸ ὀριζόμενον.

^d Ibid. b. 16.

a particular and narrow attribute may be subjoined, in addition to a more general and comprehensive attribute in which it has already been included.*

So much for the faults which belong to the manner of expressing the definition tendered. Next, as bearing on the matter and substance of the definition, the following *loci* are distinguishable.

1. The first of these *loci* is, if the matter of the definition is not *prius* and *notius* as compared with the definiend. It is one of the canons of Definition, the purpose of which is to impart knowledge of the definiend, to introduce nothing except what is prior by nature and better known than the latter. The essence of each definiend—the being what it is—is one and only one. If a definition be given, other than that by means of what is *prius* and *notius*, it would follow that the same definiend might have two distinct essences; which is impossible. Accordingly, any proposition tendered as a definition but enunciating what is not prior by nature and better known than the definiend sins against this canon, and is to be held as no true definition at all.^b

The *locus* here indicated by this general feature is one, but it includes a number of varieties.^c More known, or less known, it should first be observed, has two distinct meanings: either more or less known *absolutely* (by nature); or more or less known *to us*. Absolutely, or by nature, the point is better known than the line; the line, than the superficies; the superficies, than the solid; the *prius*, than the *posterius*. But *to us* the reverse is true. The solid, as object of sensible perception, is earlier known and more known than the

* Topica, VI. iii. p. 140, b. 27-p. 141, a. 22.

^b Ibid. iv. p. 141, a. 24-b. 2.

^c Ibid. v. p. 142, b. 20.

superficies; the superficies, than the line; the line, than the point; the *posterius*, than the *prius*. *To us* means to the bulk of mankind: *absolutely* or *by nature* refers to the instructed, superior, teaching and expository, intellects.^a There may be some cases in which the *notius nobis* coincides and is identical with the *notius naturâ*;^b but, as a rule, the two are distinct, and the one is the inverse of the other. A genuine and perfect definition is one which enunciates the essence of the Species through Genus and Differentiæ, which are both of them absolutely prior and more knowable than the Species, since, if they be supposed non-existent, the Species is nowhere to be found. No man can know the Species without knowing its Genus and Differentiæ; but you may know the Genus and Differentiæ without knowing the Species; hence the Species is more unknowable than they are.^c This is the true scientific definition; but there are persons incapable of acquiring knowledge by means of it. To these persons, an imperfect explanation or quasi-definition must be given, by means of matters knowable to them.^d Those, however, who regard such imperfect explanations as true definitions, must be reminded that, upon that hypothesis, we should be compelled to admit many distinct definitions of the same definiend. For individuals differ from each other in respect to what is more knowable: what is more so to one man is not more so to another. Indeed the same man differs from himself on this point at different periods: to the early and untrained mind objects of sensible perception are the most knowable; but, when a man has been improved by training and instruction, the case is reversed, and

^a Topica, VI. iv. p. 141, b. 3-14.

^b Ibid. b. 22.

^c Ibid. b. 25.

^d Ibid. b. 16.

the objects of intellect become the most familiar to his mind.* To define properly, therefore, we must enun-

* Topic. VI. iv. p. 141, b. 34.

The general mental fact here noticed by Aristotle may be seen philosophically stated and explained in the volume of Professor Bain on the Emotions and the Will. (Chapter on Consciousness, sect. 19, p. 581, 2nd ed.)

"A sensation is, under any view of it, a conscious element of the mind. As pleasure or pain, we are conscious in one way; as discrimination, we are conscious in the other way, namely, in a mode of neutral excitement.—But this is not all. After much contact with the sensible world, a new situation arises, and a new variety of the consciousness, which stands in need of some explanation. When a child experiences for the first time the sensation of scarlet, there is nothing but the sensibility of a new impression more or less intense. . . . It is very difficult for us to realize or define this original shock, our position in mature life being totally altered. It is the rarest thing for us *then* to come under a radically new impression; and we can only, by help of imperfect analogies, form an approximate conception of what happens at the first shock of a discriminative sensation. The process of engraining these impressions on the mind after repetition, gives to subsequent sensations quite a different character as compared with the first. The second shock of scarlet, if it stood alone, would doubtless resemble the preceding; but such is the nature of the mind, that the new shock will not stand alone, but restores the notion or idea or trace that survived the former. The sensation is no longer

the primitive stroke of surprise, but a coalition of a present shock with all that remains of the previous occasions. Hence it may properly be said, when we see, or hear, or touch, or move, that what comes before us is really contributed more by the mind itself than by the object present. The consciousness is complicated by three concurring elements—the new shock, the flash of agreement with the sum total of the past, and the feeling of that past as revived in the present. In truth, the new sensation is apt to be entirely over-ridden by the old; and, in place of discriminating by virtue of our susceptibility to what is characteristic in it, our discrimination follows another course. For example, if I have before me two shades of colour, instead of feeling the difference exactly as I am struck at the moment, my judgment resorts to the round-about process of first identifying each with some reiterated series of past impressions; and, having two sum-totals in my mind, the difference that I feel is between those totals. If I make a mistake, it may be attributed not so much to a wrong act of discrimination, as to a wrong act of identification.—All sensations, therefore, after the first of each kind, involve a flash of recovery from the past, which is what really determines their character. The present shock is simply made use of as a means of reviving some one past in preference to all others; the new impression of scarlet is in itself almost insignificant, serving only as the medium of resuscitating the cerebral condition resulting from the united force of all the previous scarlets.—Sensation thus

ciate, not the *notiora nobis* but, the *notiora naturâ* or *simpliciter*; understanding by this last phrase, not what is more knowable to all actual men but, what is more knowable to men of well-trained and well-constituted intellect; just as, when we speak of the wholesome, we mean what is wholesome to the well-constituted body.^a These conditions of Definition you must thoroughly master, and apply to each debate as the occasion may require. Your task in refuting an alleged definition will be the easiest in those cases where it conforms to neither of the above conditions; that is, when it enunciates neither what is *notius naturâ* nor what is *notius nobis*.^b

The canon being, That what is *posterius* must be defined by its *prius*,—the definer may sin against this in defining the *prius* by its *posterius*; e.g., if he defines the stationary and the determinate by means of the moveable and the variable.^c Also, when his definition is neither *prius*, nor *posterius*, but of equal position with the definiend, he is at fault. This may happen, (1) when he defines by an Opposite (for, according to some, the science of Opposites is one and the same, and it is impossible that either one of a pair can be absolutely more knowable than the other; though it is true that no relative can be understood or explained without the knowledge of its correlative, e.g., double and half); or (2) when he includes the definiend itself in his definition, either under its proper

calls into operation the two great intellectual laws, in addition to the primitive sensibility of difference.—When we consider ourselves as performing the most ordinary act of seeing or hearing, we are bringing into play those very functions of the in-

tellekt that make its development and its glory in its highest manifestations.”

^a Topic. VI. iv. p. 142, a. 10.

^b Ibid. a. 12; also, a. 32.

^c Ibid. a. 20: πρότερον γὰρ τὸ μένον καὶ τὸ ὀρισμένον τοῦ ἀορίστου καὶ ἐν κινήσει ὄντος.

name or any other name;^a or (3) when he defines by means of a contra-specific to the definiend—by something of equal specific rank or position, which is therefore *simul naturâ* therewith (*e.g.*, Odd is that which is greater than even by unity); or (4) when he defines by something specifically subordinate (*e.g.*, An even number is that which may be bisected, where bisected means divisible by two, itself one among the even numbers^b).

2. The second *locus* (after that bearing on the *Prius et Notius*) of argument for impugning a definition is, where it does not enunciate the genus in which the definiend is really included. The mention of the genus, as enunciating the fundamental essence of the definiend, ought to stand first in the definition. If your opponent defines body—that which has three dimensions, or man—that which knows how to count, you attack him by asking, What is it that has three dimensions? What is it that knows how to count? No genus has been assigned.^c

3. A third *locus* is, where the definiend is a complex whole having reference to several distinct facts or phenomena, while the definition indicates only one of them. Thus, if grammar be defined—the knowing how to write from dictation, you will object that it is just as much—the knowing how to read. The definition is incomplete unless it includes both.^d

4. A fourth *locus* is, where the definiend admits both of a better and a worse construction, and where the definition enunciates only the worse. You may impugn it, on the ground that every cognition and

^a Topic. VI. iv. p. 142, a. 22-b. 6.

^b Ibid. b. 7-19: πάλιν, εἰ τῷ ἀντι-
λεηρημένῳ τὸ ἀντιληρημένον ὥρισταί—
ὁμοίως δὲ καὶ εἰ διὰ τῶν ὑποκάτω τὸ

ἐπάνω ὥρισταί.

^c Ibid. v. p. 142, b. 22-29.

^d Ibid. b. 30.

every power must be understood as tending to its best results.^a

5. A fifth *locus* is, where the definiend is enunciated as ranking, not in the lowest and nearest species to which it belongs but, in some higher and more distinct genus. Here the real essence will not be declared, and the definition will thus be incomplete; unless indeed it includes, along with the highest genus, the superadded mention of all the differentia descending down to the lowest species. It will then be complete, because it will include, in circumlocutory phrase, all that would be declared by enunciating the specific name.^b

6. Assuming the genus to be truly declared in the definition, you will examine whether the differentia enunciated are differentia at all? whether they really belong to the definiend? what it is which they serve to contrast with and exclude,—since, if there be nothing such, they cannot be truly differentia? whether the differential term and its counter-differential apply to and cover the whole genus? whether, granting the differentia to be real, it be such, when taken along with the genus, as to constitute a true species, and whether its counter-differentia be such also? This is a *locus* furnishing many possibilities of impugning the definition.^c

7. Perhaps the definition may enunciate a differentia which is merely negative; *e.g.*, A line is length without breadth. If you are debating with a respondent who holds the (Platonic) doctrine of Ideas, and who considers each Idea or genus to be something numerically one, distinct from all its participants, you will find here a *locus* for attacking them.^d He asserts the

^a Topica, VI. v. p. 143, a. 9.

^b Ibid. a. 15-28.

^c Ibid. vi. p. 143, a. 29-b. 10.

^d Ibid. b. 11-30.

existence of a Self-long or generical long, a Self-animal or generic animal, each numerically one. Now, upon this hypothesis, since of all long you may predicate either the affirmative or the negative (*i.e.*, either it is broad or it is not broad), so this alternative may be predicated of the Self-long or generical long; and thus the genus will coincide with, or fall under the definition of, one among its own species. Or, if this be denied, it will follow that the generic long must be both broad and not broad; which is a contradiction still more inadmissible. Accordingly, against one who holds the doctrine of Ideas, declaring the genus to be *unum numero*, the negative differentia will furnish grounds for attack; but not against any other respondent.* For there are various cases in which the negative must be employed as a part of the differentia: *e.g.*, in privative terms, blind is one whose nature it is to see but who does not see. And, even when the differentia enunciated is affirmative, it may have for its condivident member only a negative term; *e.g.*, length having-breadth has for its condivident member only the negative, length not-having-breadth.^b

8. Perhaps the definition may enunciate as a differentia what is really a subordinate species; or what is really the genus itself under another name; or what is not *Quale*, but *Quid*; or what belongs to the definiend as an accident only. Each of these is a *locus* for arguments against the definition.^c

9. Perhaps also, in the definition given, the differentia or the species may be found predicable of the entire genus; or the genus may be found predicable of

* Topic. VI. vi. p. 143, b. 29 :
ὥστε πρὸς ἐκείνους μόνους χρή-
σιμος ὁ τόπος, ὅσοι τὸ γένος ἐν ἀριθ-
μῷ φασὶν εἶναι. τοῦτο δὲ ποιοῦσιν

οἱ τὰς ἰδέας τιθέμενοι· αὐτὸ γὰρ μῆκος
καὶ αὐτὸ ζῷον γένος φασὶν εἶναι.

^b Ibid. b. 33.

^c Ibid. p. 144, a. 5-27.

the differentia itself, and not of objects under it; or the species (sometimes even one of its sub-species) may be found predicable of the differentia; or perhaps the differentia may not be a *prius* as regards the species (which it ought to be, while it is a *posterius* as regards the genus). Arguments against the definition may be drawn from any one of these *loci*.^a

10. Recollect that the same differentia cannot belong to two distinct genera neither of which comprehends the other, unless both are comprehended under some higher genus. Examine whether this is observed in the definition tendered to you.^b

11. No genuine differentia can be derived either from the Category *Ubi* or from the Category *Passio*; for neither of them furnishes characteristics essential to the subject. All *Passio* when intensified to a certain degree destroys the essence of the subject and removes it from its own appropriate species; but the differentia is inseparable from its subject; accordingly, nothing by virtue of which the subject is called ἀλλοῖον can be a true differentia. If the definition sins against this rule, it will be open to question.^c

12. If the subject be relative, its true differentia ought to be relative also; thus, science or cognition is a *relatum*, and accordingly its three differentia—theoretical, practical, constructive—are all *relata* also.^d The definition must conform to this; and it must also, in cases where the relative subject has more than one correlate, declare that correlate which is the ordinary

^a Topica, V. vi. p. 144, a. 28-b. 11.

^b Ibid. b. 12.

^c Ibid. b. 31-p. 145, a. 12: ὁρᾶν δὲ καὶ εἰ τὸ ἐν τινὶ διαφορὰν ἀποδέδωκεν οὐσίας· οὐ δοκεῖ γὰρ διαφέρειν οὐσία οὐσίας τῇ που εἶναι.—πάλιν εἰ τὸ

πάθος διαφορὰν ἀποδέδωκεν.—ἀπλῶς δ' εἰπεῖν, καθ' ὅσα ἀλλοιοῦται τὸ ἔχον, οὐδὲν τούτων διαφορὰ ἐκείνου—ἀπλῶς γὰρ οὐκ ἀλλοιοῦμεθα κατὰ τὰς διαφοράς.

^d Ibid. a. 13.

and natural one, not any other which is rare and realized only on occasion.^a You must watch to see whether this condition is observed; and also whether the correlative enunciated in the definition is the one strictly proximate. Thus, if the definition given of prudence be, It is an excellence of man or an excellence of the soul, this will not be a good definition. It ought to be —an excellence of the rational department of the soul; for it is through and by reason of this department that both man and soul are denominated prudent.^b

13. When the definiend is given as an affection or lasting condition of some subject, you must examine whether it really resides or can reside (as by nature it ought to do) in the subject to which it is referred in the definition. If it cannot, the definition is untenable; and this mistake is sometimes made, the producing conditions of a phenomenon being confounded with the phenomenon itself, or *vice versâ*.^c Thus, some persons have defined sleep—incapacity of sensible perception; doubt—equality of contrary reasonings: pain—breach of continuity violently made in parts of the organism which naturally grow together. Now sleep does not reside in perception, nor doubt in reasonings. Sleep is that which produces or occasions incapacity of sensible perception; doubt is a state of mind produced by equality of contrary reasonings.^d This will be a *locus* for arguing against the definition.

14. Another *locus* is, when the definiend has direct bearing and reference to something different from what is enunciated in the definition. Thus, if the respondent

^a Topica, VI. vi. p. 145, a. 19-26.

^b Ibid. a. 28-32. πρώτου γὰρ τοῦ λογιστικοῦ ἀρετὴ ἢ φρόνησις· κατὰ γὰρ τοῦτο καὶ ἡ ψυχὴ καὶ ὁ ἄνθρωπος φρονεῖν λέγεται.

^c Ibid. b. 11: τὸ ποιούμενον εἰς το ποιητικὸν ἢ ἀνάπαλιν συμβαίνει τιθέναι τοῖς οὕτως ὀριζομένοις.

^d Ibid. a. 33-b. 20.

defines justice—a power tending to make equal distribution, you may remark hereupon, that the just man is he who is deliberately resolved to make equal distribution, not he who has the power to do so. If this definition were allowed, the justest man would be he who has the greatest power of so distributing.*

15. Again, the definition will be assailable, if the definiend admits graduation of More or Less, while that which is enunciated in the definition does not admit it, or *vice versâ*; also, if both of them admit graduation, but the variations of the two are not corresponding and concomitant. The defining phrase ought to be identical in signification with the term defined.^b If both of them agree in reference to some common correlate, but one is to this in the relation of more while the other is in the relation of less, the definition is faulty.^c

16. Again, you will be able to object, if the definition enunciate references to two distinct correlates, severally or alternately: *e.g.*, The beautiful is that which affords pleasure either through the eye or through the ear; *Ens* is that which is capable either of suffering or acting. You may show that, according to this definition, beautiful and not beautiful, or that *Ens* and *Non-Ens*, will coincide and be predicable of the same subjects.^d

17. When the definition is tendered, you ought to examine and define its own terms, which, of course, pro-

* Topic. VI. vii. p. 145, b. 34-p. 146, a. 2.

^b Ibid. p. 146, a. 3-12. *εἴπερ δὴ ταῦτόν ἐστι τὸ κατὰ τὸν λόγον ἀποδοθὲν τῷ πράγματι.*

Here we have a principle of Concomitant Variations analogous to that which is so well unfolded, as one of the Four Inductive Methods, in Mr. J. S. Mill's 'System of Logic.' See Book III. ch. viii. sect. 6.

* Topic. VI. vii. p. 146, a. 6-20: *ἔδει δ' ἀμφότερα μᾶλλον τῷ αὐτῷ ὑπάρχειν, εἴπερ ταῦτ' ἦν, &c.*

^d Ibid. a. 21-32.

The definition here given of *Ens* appears in the Sophistes of Plato, p. 247, E. The definition of the beautiful (τὸ καλόν) appears in the Hippias Major of Plato (p. 298, E, seq.), where it is criticized by Sokrates.

fess to enunciate genus and differentia of the definiend.* You will see whether the definitions of those defining terms are in any way inapplicable to the definiend.

18. If the definiend be a *Relatum*, the definition ought to enunciate its true correlate, or the true correlate of the genus to which it belongs. You must examine whether this is done, and whether the correlate enunciated be an ultimate end, as it ought to be (*i.e.*, not merely a means towards something ulterior). If the correlate enunciated is a generation or a process, this will afford you an argument against the definition; for all generation or process is a means towards some ulterior end.^b

19. The definition ought not to omit any of the differentia of the definiend; if any be omitted, the real essence is not declared. Here then is a defect in the definition, which it is your business always to assail on its defective side.^c Thus, if the definiend be a *relatum* corresponding, not to some correlate absolutely but, to some correlate specially quantified or qualified, the definition ought to enunciate such quantification or qualification; if it does not, it is open to attack.

20. Suppose that the definiend is one of the appetites, relative to an *appetitum* as correlate, a mode of the good or agreeable. You will take notice whether the definition given thereof enunciates the correlate as only an apparent mode of good: if it does not, you have a *locus* for attacking it. But if it does, and if the definer be one who believes in the Platonic Ideas,

* Topic. VI. vii. p. 146, a. 33-35.

^b Ibid. viii. p. 146, a. 36-b. 19. This is a subtle distinction. He says that desire must be defined (not desire of the pleasurable, but) desire of pleasure: we desire the pleasurable for the sake of pleasure. He admits, how-

ever, that there are cases in which the argument will not hold: σχεδόν γὰρ οἱ πλείστοι ἡδεσθαι μᾶλλον βούλονται ἢ πεπαύσθαι ἡδόμενοι· ὥστε τὸ ἐνεργεῖν μᾶλλον τέλος ἂν ποιοῖντο τοῦ ἐνηργηκέναι.

* Ibid. b. 20: πάλιν ἐπ' ἐνίων εἰ

you may attack him by showing that his definition will not square with that doctrine. For the definition as so given will not suit for the ideal or generic appetite—the Self-appetite; which correlates with the ideal or generic good—the Self-good. In this no distinction is admissible of real and apparent: a Self-apparent-good is an absurdity.^a

21. Again, suppose that the definiend is a habit or disposition. You will examine how far the definition fits as applied to the individual person who has the habit; and how far it fits when taken in comparison with subjects contrary or congeneric. Every such definition, if good, implies in a certain way the definition of the contrary: he who defines cognition furnishes by implication the definition of ignorance.^b

22. Or suppose the definiend to be a generic *relatum*, and the definition to enunciate its generic correlate. You must call to mind the specific terms comprehended under these two generic terms, and observe whether they fit on to each other respectively. If they do not, the definition is faulty.^c

23. You will farther examine whether the Opposite of the definition will serve as definition to the Opposite

μὴ διώρικε τοῦ πόσου, ἢ ποίου, ἢ ποῦ, ἢ κατὰ τὰς ἄλλας διαφοράς, — ἀπολείπων γὰρ διαφορὰν ἡγνισοῦν οὐ λέγει τὸ τί ἦν εἶναι· δεῖ δ' αἰεὶ πρὸς τὸ ἐνδεὲς ἐπιχειρεῖν.

^a Topic. VI. viii. p. 146, b. 36-p. 147, a. 11. εἰδὲν δὲ καὶ ἀποδῶν τὸ εἰρημένον, ἐπὶ τὰ εἶδη ἀκτίον τὸν τιθέμενον ιδέας εἶναι· οὐ γὰρ ἐστὶν ιδέα φαινομένου οὐδενός, τὸ δ' εἶδος πρὸς τὸ εἶδος δοκεῖ λέγεσθαι, οἷον αὐτὴ ἐπιθυμία αὐτοῦ ἡδέος καὶ αὐτὴ βούλησις αὐτοῦ ἀγαθοῦ. οὐκ ἔσται οὖν φαινόμενον ἀγαθοῦ οὐδὲ φαινόμενον ἡδέος· ἀποπον γὰρ τὸ εἶναι αὐτὸ φαινόμενον

ἀγαθὸν ἢ ἡδύ.

Compare Plato, *Parmenides*, pp. 133-134, where this doctrine that if the *relatum* be an Idea (*sensu Platónico*), the *correlatum* must also be an Idea, is enunciated and pushed to its consequences: ὅσαι τῶν ιδεῶν πρὸς ἀλλήλας εἰσὶν αἱ εἰσιν, αὐταὶ πρὸς αὐτὰς τὴν οὐσίαν ἔχουσιν, ἀλλ' οὐ πρὸς τὰ παρ' ἡμῖν εἴτε ὁμοιώματα εἴτε ὅσα δὴ τις αὐτὰ τίθεται, &c.—αὐτὴ δὲ δεσποτεία αὐτῆς δουλείας ἐστὶν ὃ ἐστι, &c. (133, C-E.)

^b Topic. VI. ix. p. 147, a. 12-22.

^c Ibid. a. 23-28.

of the definiend, as the definition of half is opposite to the definition of double; thus, if double is that which exceeds equality, half is that which is exceeded by equality. The like is true of Contraries: if the profitable be that which is productive of good, the hurtful will be that which is productive of evil or destructive of good. If, on trying the contraries, you find that this will not hold, the definition originally given will be found unsatisfactory.* In defining the privative contrary of any term, a man cannot avoid enunciating in the definition the term of which it is the privative; but he is not allowed to define the term itself by means of its privative. To define equality—that which is contrary to inequality, is improper. You will require him at once to define inequality; and his definition must be—the privation of equality. Substitute this definition of the term inequality, in place of that term itself, in the above-named definition of equality: and the last definition will then run as follows: Equality is that which is contrary to the privation of equality. Here the definiend is enunciated as a part of the definition of itself; a proof that the original definition—Equality is the contrary of inequality—is itself wrong.^b

24. When the definiend is a Privative Term, the definition given ought to enunciate that which it is, and that of which it is the privation; also that subject in which it resides naturally and in the first instance. In defining ignorance, the definition must enunciate not privation only, but privation of knowledge; nor will this be sufficient unless it be added that the privation of know-

* Topic. VI. ix. p. 147, a. 29-b. 4.

We must remember that Aristotle, classifying *Relata* as one species under the genus *Opposita*, treats double and half as *Opposita*, i. e. *Relative*-

Opposita. I have already said that I think this classification improper, and that *Opposita* ought to be ranked as a species under the genus *Relata*.

^b Ibid. b. 4-25.

ledge is in the rational department of the soul (ἐν τῷ λογιστικῷ). Privation of knowledge in the soul or in the man, will not suffice; because neither of these subjects is that in which the attribute resides in the first instance: the rational department of the soul must be named by itself, as being the primary subject of the attribute. If the definition be wanting in any of these conditions, you will have an argument for impeaching it.^a

25. A term that is privative in form may sometimes be used in the sense of mere negation, not in that of privation. If this term be defined generally by privation, the definition will not include the merely negative sense, and will therefore be impeachable. The only general explanation attainable is that by pure negation, which is common both to the negative and the privative. Thus, if the respondent defines ignorance—privation of knowledge, such privation can be predicated only of subjects whose nature it is to have knowledge or who might be expected to have it: such privation cannot be predicated of infants, or of inanimate objects like stones. To include these, ignorance must be explained as the mere negation or non-existence of knowledge; the definition thereof by privation is inadequate.^b

26. If you are debating with one who holds the Platonic doctrine of Ideas, you will note whether any definition that he may give fits not only the definiend itself but also the Idea of the definiend. Thus, Plato

^a Topic. VI. ix. p. 147, b. 26-p. 148, a. 2.

^b Ibid. p. 148, a. 3-9: ὁρᾶν δὲ καὶ εἰ μὴ λεγομένου κατὰ στέρησιν στερήσας ὠρίσασθαι, ὅσον καὶ ἐπὶ τῆς ἀγνοίας δόξαιεν ἂν ὑπάρχειν ἢ τοιαύτη ἁμαρτία τοῖς μὴ κατ' ἀπόφασιν τὴν ἀγνοίαν λέγουσιν.

Waitz says in note, p. 503:—"Sensus loci hic est. Peccant qui per privationem ignorantiam definientes non eam ignorantiam definire voluerunt quæ est κατ' ἀπόφασιν, sed eam quæ est κατὰ διάθεσιν." Compare Analyt. Poster. I. xvi. p. 79, b. 23.

in defining animal introduces mortality as a part of his definition;^a but mortality cannot be predicated of the Idea or generic animal—the Self-animal; therefore, you will have an argument against his definition. In like manner, if any active or passive attribute is brought into his definition, you will object that this cannot apply to the Ideas; which are avowedly impassive and unchangeable.^b

27. Another *locus* for counter-argument is, where the definiend is Equivocal or Analogous, while one and the same definition is made to apply to all its distinct meanings. Such a definition, pretending to fit all, will in reality fit none; nothing but an univocal term can come under one and the same definition. It is wrong to attempt to define an equivocal term.^c When its

^a Topic. VI. x. p. 148, a. 15: *ὡς Πλάτων ὀρίσεται τὸ θνητὸν προσάπτων ἐν τοῖς τῶν ζῴων ὀρισμοῖς.*

This may perhaps allude to Plato's manner of speaking of ζῶα in Sophistes, p. 246, E., p. 265, C.; Timæus, p. 69, C.

^b Topica, VI. x. p. 148, a. 14-22. *ἀπαθεῖς γὰρ καὶ ἀκίνητοι δοκοῦσιν αἱ ἰδέαι τοῖς λέγουσιν ἰδέας εἶναι.*

^c Ibid. a. 23-37: *ἐτι εἰ τῶν καθ' ὁμωνυμίαν λεγομένων ἓνα λόγον ἀπάντων κοινὸν ἀπέδωκεν.—ἀλλ' οὐδὲν ἦν-τον, εἰ ὁποτέρωσιν πεποίηκεν, ἡμάρτηκεν.*

Aristotle here cites and censures the definition of life given by a philosopher named Dionysius; he remarks that life is an equivocal term, having one meaning in animals, another and a different one in plants. Dr. Whewell has remarked that even at the present day a good definition of life is matter of dispute, and still a desideratum with philosophers.

Mr. John S. Mill adverts, in more than one portion of his 'System of

Logic' (Bk. IV. ch. iii. s. 5, p. 222, seq.; Bk. V. ch. v. s. 8, p. 371), to the mistake and confusion arising from attempts to define Equivocal Terms. "The inquiries of Plato into the definitions of some of the most general terms of moral speculation, are characterized by Bacon as a far nearer approach to a true inductive method than is elsewhere to be found among the ancients, and are, indeed, almost perfect examples of the preparatory process of comparison and abstraction; but, from being unaware of the law just mentioned, he often wasted the powers of this great logical instrument on inquiries in which it could realize no result, since the phenomena, whose common properties he so elaborately endeavoured to detect, had not really any common properties. Bacon himself fell into the same error in his speculations on the nature of heat, in which he evidently confounded, under the name hot, classes of phenomena which had no property in common."—"He occasionally pro-

equivocation is not obvious, the respondent will put it forward confidently as univocal; while you as assailant will expose the equivocation. Sometimes, indeed, a respondent may pretend that an univocal word is equivocal, or that an equivocal word is univocal, in the course of the debate. To obviate such misconception, you will do well to come to an agreement with him prior to the debate, or to determine by special antecedent reasonings what terms are univocal or equivocal; for at that early stage, when he does not foresee the consequence of your questions, he is more likely to concede what will facilitate your attack. In the absence of such preliminary agreement, if the respondent, when you have shown that his bad definition will not apply universally, resorts to the pretence that the definiend, though really univocal, is equivocal, you will press him with the true definition of the part not included under his definition, and you will show that this true definition suits also for the remaining parts of the definiend. You will thus confute him by showing that, upon his original hypothesis, it must follow that there are two distinct definitions for the same definiend—the bad one which he has given, and the true one which you have constrained him to admit.* Perhaps, however, the term which he has undertaken to define may be really

ceeds like one who seeking for the cause of hardness, after examining that quality in iron, flint, and diamond, should expect to find that it is something that can be traced also in hard water, a hard knot, and a hard heart."

* Topic. VI. x. p. 148, a. 37, seq. *ἐπεὶ δ' ἔνια λανθάνει τῶν ὁμωνύμων, ἐρωτῶντι μὲν ὡς συνωνύμοις χρηστέον, αὐτῷ δ' ἀποκρινόμενῳ διαιρετέον. ἐπεὶ δ' ἔνιοι*

τῶν ἀποκρινομένων τὸ μὲν συνώνυμον ὁμώνυμόν φασιν εἶναι, ὅταν μὴ ἐφευρόμενται ἐπὶ πάν τοις ἀποδοθείς λόγος,—προδιομολογητέον ὑπὲρ τῶν τοιούτων ἢ προσυλλογιστέον ὅτι ὁμώνυμον ἢ συνώνυμον, ὁπότερον ἀν ἡ· μᾶλλον γὰρ συγχωροῦσιν οὐ προσορῶντες τὸ συμβησόμενον.

These counsels of Aristotle are remarkable, as bearing on the details, and even the artifices, of dialectical debate.

equivocal, and therefore undefinable ; nevertheless, when you have shown the insufficiency of his definition, he may refuse to admit that the term is equivocal, but will deny a portion of its real meaning. You will then remind him that, as to the meaning of names, we must recognize tradition and custom without presuming to disturb it ; but that, when we combine these names in our own discourse, we must beware of those equivocations which mislead the multitude.*

28. If the definiend, of which a definition is tendered to you, is a compound, you may subtract from this definition the definition of one of the parts of the definiend, and then examine whether the remainder will suit as a definition of the remaining part of the definiend. If the remainder should not suit, this will show that the entire definition tendered is not tenable. Thus, if the definiend be a finite straight line, and if the definition tendered be, It is the boundary of a finite plane, of which (boundary) the middle covers or stands in the way of the extremities ; you may subtract from this definition the definition of a finite line, viz., the boundary of a plane surface having boundaries, and the remainder of the definition ought then to suit for the remainder of the definiend. Now the remainder of the definiend is—straight ; and the remainder of the definition is—that of which the middle covers or stands in the way of the extremities. But these two will *not* suit ; for a line may be straight, yet infinite, in which case it will have neither middle nor extremities. Accordingly, since the remainder of the definition will not suit for the remainder of the definiend, this will serve

* Topica, VI. x. p. 148, b. 16-22. | καὶ παρεπομένη καὶ μὴ κινεῖν τὰ τοι-
 ῥητέον πρὸς τὸν τοιοῦτον ὅτι τῇ μὲν | αὐτα, ἕνα δ' οὐ λεκτέον ὁμοίως τοῖς
 ὀνομασίᾳ δεῖ χρῆσθαι τῇ παραδεδομένῃ | πολλοῖς.

as an argument that the entire definition tendered is not a good one.^a

If the definiend be a compound, and if the definition contain no greater number of words than the definiend, the definition must be faulty; it will be nothing better than a substitution of words. Still more faulty will it be, if it substitutes rare and strange words in place of others which are known and familiar; or if it introduces a new word which signifies something different from that which it replaces.^b

The definiend, being compound, will contain both a generic and a differential term. In general, the generic term will be the better known of the two; yet sometimes the other is the better known. Whichever of the two is the better known, the definer ought to choose that, if all that he aims at is a mere substitution of one name in place of another. But, if he aims at something more or at the substitution of an explanatory proposition in place of a name (without which there can be no true definition), he ought then to choose the differentia in preference to the genus; for the definition is produced for the purpose of imparting knowledge, and the differentia, being usually less known than the genus, stands most in need of extraneous help to cognition.^c When the definition of the differentia has thus been tendered, you will examine whether it will be equally suitable for any other definiend also. If it be, you have an argument against the goodness of the definition. For example, the definition of odd number tendered to you may be—number having a middle. Here, since number is common both to the definiend and to the definition, having-a-middle is evidently put

^a Topic. VI. xi. p. 148, b. 23-32.

^b Ibid. b. 32-p. 149, a. 13.

^c Ibid. p. 149, a. 14-28.

forward as the equivalent of odd. But this cannot stand as equivalent to odd; since various other subjects which are not odd (such, for example, as a body or a line), nevertheless have a middle. Since, then, we see that having-a-middle would be suitable in defining definiends which are not odd, it cannot be admitted, without some qualifying adjunct, as a good definition of odd. The adjunct annexed must declare in what sense middle is intended, since it is an equivocal phrase.^a

29. If the definiend be a something really existent, the definition given of it ought not to be a proposition declaring an incompatible combination, such as neither does nor can exist. Some, for example, define white—colour mingled with fire; which is incompatible, since that which is incorporeal (colour) cannot be mingled with a body (fire).^b

30. Again, suppose the definiend to be a *Relatum*: the correlate thereof must of course be declared in the definition. Care, however, must be taken that it shall be declared, not in vague generality but, distinctly and with proper specialization; otherwise, the definition will be incorrect either entirely or partially. Thus, if the respondent defines medicine—the science of the really existent, he is incorrect either wholly or partially. The *relatum* ought to reciprocate or to be co-extensive with its correlate.^c When the correlate, however, is properly specialized in the definition, it may be declared under several different descriptions; for the same real thing may be at once *ens*, *album*, *bonum*. None of these descriptions will be incorrect. Yet, if the correlate is

^a Topic. VI. xi. p. 149, a. 29-37.

^b Ibid. xii. p. 149, a. 38-b. 3.

^c Ibid. b. 4, seq.: ἔτι ὅσοι μὴ δια-
ρῶσιν ἐν τοῖς πρὸς τι πρὸς ὃ λέγεται,
ἀλλ' ἐν πλείοσι περιλαβόντες εἶπαν, ἡ

ὅλως ἢ ἐπὶ τι ψεύδονται, οἷον εἴ τις
τὴν λατρικὴν ἐπιστήμην ὄντος εἶπεν—
ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων, ἐπειδὴ
ἀντιστρέφει πάντα τὰ πρὸς τι.

thus described in the definition of a *relatum*, the definition cannot be considered good or sufficient. For it applies to more things besides the definiend; and a good definition ought to reciprocate or to be co-extensive with its definiend.^a

31. Another mistake in defining is committed, when a man defines, not the subject purely and simply but, the subject in a high measure of excellence. Sometimes the rhetor (*e.g.*) is defined—one who can perceive and produce without omission all that there is plausible in any cause; the thief is defined—one who takes away secretly what belongs to another. But these are the definitions, not of a rhetor and a thief generally but, of a skilful rhetor and skilful thief. The thief is one who is bent on taking away secretly, not one who *does* take away secretly.^b

32. Again, another error consists in defining what is desirable in itself and on its own account, as if it were desirable as a means towards some other end—as productive or preservative thereof. For example, if a man defines justice—that which is preservative of the laws; or wisdom—that which is productive of happiness, he presents them as if they were desirable, not for themselves but, with reference to something different from themselves. This is a mistake; and it is not less a mistake, though very possibly the same subject may be desirable both for itself and for the sake of something else. For the definition ought to enunciate what is best in the definiend; and the best of every thing resides most in its essence, not in what it is rela-

^a Topica, VI. xii. p. 149, b. 12-23.

ἔτι δ' ἀδύνατον τὸν τοιοῦτον λόγον ἴδιον τοῦ ἀποδοθέντος εἶναι·—δηλον οὖν ὅτι ὁ τοιοῦτος οὐδεμίᾳ ἐστὶν ἐπιστήμης ὀρισμός· ἴδιον γὰρ καὶ οὐ κοινὸν

δεῖ τὸν ὀρισμὸν εἶναι.

^b Ibid. b. 24-30. οὐ γὰρ ὁ λάθρα λαμβάνων, ἀλλ' ὁ βουλόμενος λάθρα λαμβάνειν, κλέπτης ἐστίν.

tively to something else. It is better to be desirable *per se*, than *alterius causâ*.^a

33. Perhaps the definition tendered may be a complex proposition, enunciating two terms either jointly or severally, in one or other of three combinations. Either the definiend is A and B; or it is that which springs out of A and B; or it is A with B.^b In each of these three cases you may find arguments for impugning the definition.

a. Thus, take the first of the three. Suppose the respondent to define justice by saying, It is temperance and courage. You may urge against him, that two men, one of whom is temperate without being courageous, while the other is courageous without being temperate, will be just together, though neither of them separately is just; nay, that each of them separately (the one being temperate and cowardly, the other courageous and intemperate), will be both just and unjust; since, if justice is temperance and courage, injustice will be intemperance and cowardice.^c The definer is open to the farther objection that he treats enumeration of parts as identical with the whole; as if he defined a house—bricks and mortar, forgetting the peculiar mode of putting them together. Bricks and mortar may exist, and yet there may be no house.^d

b. Next, suppose the definition to declare, that the definiend is that which springs from A and B—is a result or compound of A and B. You will then examine whether A and B are such as to yield any result;

^a Topic. VI. xii. p. 149, b. 31-39.
 ἐκάστου γὰρ τὸ βέλτιστον ἐν τῇ οὐσίᾳ
 μάλιστα, βέλτιον δὲ τὸ δι' αὐτὸ αἰρετὸν
 εἶναι τοῦ δι' ἕτερον, ὥστε τοῦτο καὶ τὸν
 ὀρισμὸν ἔδει μᾶλλον σημαίνειν.

^b Ibid. xiii. p. 150, a. 1-4: σκοπεῖν
 δὲ καὶ εἴ τις ὀρισμὸν ἀποδίδους τάδε,

ἢ τὸ ἐκ τούτων, ἢ τότε μετὰ τοῦδε
 ὥρισται.

^c Ibid. a. 4-14.

^d Ibid. a. 15-21. δῆλον γὰρ ὅτι τῶν
 μερῶν ὄντων οὐδὲν κωλύει τὸ ὅλον
 μὴ εἶναι· ὥστε οὐ ταῦτ' ἐν τὰ μέρη τῆ
 ὅλφ.

for some couples (as a line and a number) yield no result. Or, perhaps, the definiend may by its own nature inhere in some first subject, while A and B do not inhere in any one first subject, but one in the other; in which case the definition is assailable.^a Or, even granting that it is the nature of A and B to inhere in the same first subject, you may find that that first subject is not the same as the one in which the definiend inheres. Now the whole cannot thus inhere in one, and the parts in another: you will here have a good objection. Or, perhaps, it may appear that, if the whole be destroyed, the parts will be destroyed also; which ought not to be, but the reverse; for, when the parts are destroyed, the whole must necessarily vanish. Or, perhaps, the definiend may be good or bad, while the parts of the definition (A and B) are neither one nor the other. (Yet this last is not a conclusive objection; for it will sometimes happen in compound medicines that each of the ingredients is good, while they are bad if given in conjunction.)^b Or, perhaps, the whole may bear the same name as one of its parts: this, also, will render the definition impeachable. Still more will it be impeachable, if it enunciates simply a result or compound of A and B, without specifying the manner of composition: it ought to declare not merely the parts of the compound, but also the way in which they are put together to form the compound.^c

c. Lastly, suppose the definition to declare that the definiend is A along with B. You will note, first, that this third head must be identical either with the first or with the second (*e.g.*, honey *with* water means either

^a Topic. VI. xiii. p. 150, a. 22-30. ἄλλ' ἐκάτερον ἐν ἐκατέρῳ.

ἔτι εἰ τὸ μὲν ὠρισμένον ἐν ἐνί τινι πέφυκε
τῷ πρώτῳ γίνεσθαι, ἐξ ὧν δ' ἔφησεν
αὐτὸ εἶναι, μὴ ἐν ἐνί τινι τῷ πρώτῳ,

^b Ibid. a. 30-b. 13.

^c Ibid. b. 14-26. ἔτι εἰ μὴ εἴρηκε
τὸν τρόπον τῆς συνθέσεως &c.

honey and water, or the compound of honey with water); it will therefore be open to impeachment on one or other of the above-named grounds of objection, according as the respondent may admit.^a You may also distinguish all the different senses in which one thing may be said to be *with* another (*e.g.*, when the two are in the same recipient, justice and courage together in the soul; or in the same place; or in the same time), and you may be able to show that in none of these senses can the two parts of the definition be truly said to be one along with the other.^b Or, if it be true that these two parts are co-existent in time, you may enquire whether they are not affirmed with relation to different correlates. *E.g.*, The definition of courage may be tendered thus: Courage is daring along with right intelligence; upon which you may remark that daring may have reference to an act of spoliation, and that right intelligence may have reference to the preservation of health. Now a man who has both daring and right intelligence in *these* senses, cannot be termed courageous, and thus you will have an argument against the definition. And, even if they be affirmed with reference to the same correlate (*e.g.*, the duties of a physician), a man who has both daring and right intelligence in reference to these duties will hardly be styled courageous: the term courage must be so defined as to have reference to its appropriate end; *e.g.*, the dangers of war, or any still more public-spirited end.^c Another mistake may, per-

^a Topic. VI. xiii. p. 150, b. 27-32. ὥστ' εἰάν ποτεροφούν τῶν εἰρημένων ταυτὸν ὁμολογήσῃ εἶναι τὸ τούδε μετὰ τοῦδε, ταῦτ' ἀρμόσει λέγειν ἅπερ πρὸς ἑκάτερον τούτων ἔμπροσθεν εἴρηται.

^b Ibid. b. 32-39. ἢ ὥς ἐν τινι ταύτῳ δεκτικῷ, &c.

^c Ibid. p. 151, a. 1-13. οὔτε γὰρ πρὸς ἕτερον αὐτῶν ἑκάτερον δεῖ λέγεσθαι οὔτε πρὸς ταυτὸν τὸ τυχόν, ἀλλὰ πρὸς τὸ τῆς ἀνδρείας τέλος, οἷον πρὸς τοὺς πολεμικοὺς κινδύνους ἢ εἴ τι μᾶλλον τούτου τέλος.

haps, be committed in this same sort of definition—A along with B; as when, for example, the definition tendered of anger is—pain along with the belief of being treated with contempt. What the definer really intends here is, that the pain arises from the belief of being treated with contempt. But this is not expressed by the terms of his definition, in any one of their admissible meanings.^a

34. Perhaps the definition, while including two or more distinct parts, may be tendered in this form: The definiend is the composition of A and B; *e.g.*, animal is the composition of soul and body. You will first note that the definer has not declared what sort of composition. There is a great difference between one mode of composition and another; the mode must be specialized. Both flesh and bone may be defined—a composition of fire, earth, and water; but one mode of composition makes flesh, another makes bone, out of these same elements. You may also take the farther objection that to define a compound as composition is erroneous; the two are essentially disparate, one of them being abstract, the other concrete.^b

35. If the definiend be in its nature capable of receiving two contrary attributes, and if the respondent define it by one or other of them, you have an argument against him. If one of them is admissible, the other must be equally so; and upon this supposition there would be two distinct definitions of the same subject; which has been already declared impossible. Thus, it is wrong to define the soul as a substance which is recipient of knowledge; the soul is also recipient of ignorance.^c

36. Perhaps the definiend is not sufficiently well known to enable you to attack the definition as a whole,

^a Topic. VI. xiii. p. 151, a. 14-19.

^b Ibid. a. 20-31.

^c Ibid. a. 32-b. 2.

but you may find arguments against one or other of its parts; this is sufficient to upset it. If it be obscure and unintelligible, you should help to correct and remodel it until it becomes clear; you will then see what are the really assailable points in it. When you indicate and expose the obscurity, the respondent must either substitute some clearer exposition of his own meaning, or else he must acquiesce in that which you propose as substitute.^a If the improved definition which you propose is obviously clearer and better, his previous definition is of course put out of court; since there cannot be several definitions of the same subject.^b

To conclude, one suggestion may be given bearing upon all the arguments that you have to carry on against definitions tendered by respondents:—Reflect on the definiend, and frame a definition of it for yourself, as cleverly as you can at the moment; or call to mind any good definition of it which you may have heard before. This will serve you as a standard with which to compare the definition tendered, so that you will see at once what there is in it either defective or redundant, and where you can find arguments against it.^c

VII.

In the Seventh Book of the Topica Aristotle continues his review of the manner of debating theses which profess to define, but enters also on a collateral

^a Topic. VI. xiv. p. 151, b. 3-11.
ὅσοι τ' ἀσαφείς τῶν ὀρισμῶν, συνδιο-
ρῶσαντα καὶ συσχηματίσαντα πρὸς τὸ
δηλοῦν τι καὶ ἔχειν ἐπιχείρημα, οὕτως
ἐπισκοπεῖν ἀναγκαῖον γὰρ τῷ ἀπο-
κρινομένῳ ἢ δέχεσθαι τὸ ἐκλαμβάνο-
μενον ὑπὸ τοῦ ἐρωτῶντος, ἢ αὐτὸν
διασαφῆσαι τί ποτε τυγχάνει τὸ δηλού-

μενον ὑπὸ τοῦ λόγου.

^b Ibid. b. 12-17.

^c Ibid. b. 18-23. ἀνάγκη γὰρ,
ὥσπερ πρὸς παράδειγμα θεώμενον, τό
τ' ἐλλείπον ὡν προσήκεν ἔχειν τὸν
ὀρισμὸν καὶ τὸ προσκείμενον περιέργως
καθορᾶν, ὥστε μᾶλλον ἐπιχειρημάτων
εὐπορεῖν.

question connected with that discussion : viz., By what arguments are we to determine whether two Subjects or Predicates are the same *Numero* (*modo maxime proprio*), as distinguished from being the same merely *Specie* or *Genere*? To measure the extent of identity between any two subjects, is important towards the attack and defence of a definition.*

Two subjects (A and B) being affirmed as the same *numero*, you may test this by examining the Derivatives, the Co-ordinates, and the Opposites, of each. Thus, if courage is identical with justice, the courageous man will be identical with the just man ; courageously will be identical with justly. Likewise, the opposite of courage (in all the four modes of Opposition) will be identical with the opposite of justice. Then, again, the generators and destroyers, the generations and destructions, of courage, will be identical with those of justice.^b If there be any predicate applied to courage in the superlative degree, the same predicate will also be applied to justice in the superlative degree.* If there be a third subject C with which A is identical, B also will be identical therewith. The same attributes predicable of A will also be predicable of B ; and,

* Topic. VII. i. p. 151, b. 28 : πότερον δὲ ταῦτον ἢ ἕτερον κατὰ τὸν κυριώτατον τῶν ῥηθέντων περὶ ταύτου τρόπου (ἐλέγετο δὲ κυριώτατα ταῦτων τὸ τῷ ἀριθμῷ εἶναι) &c.

^b Ibid. p. 152, a. 2.

* Ibid. a. 5-30 : σκοπεῖν δὲ καὶ ὡς θάτερον μάλιστα λέγεται ὅτι οὖν, εἰ καὶ θάτερον τῶν αὐτῶν τούτων κατὰ τὸ αὐτὸ μάλιστα λέγεται, καθάπερ Ξενοκράτης τὸν εὐδαίμονα βίον καὶ τὸν σπουδαῖον ἀποδείκνυσι τὸν αὐτόν, ἐπειδὴ πάντων τῶν βίων αἰρετώτατος ὁ σπουδαῖος καὶ ὁ εὐδαίμων· ἐν γὰρ τὸ αἰρετώτατον καὶ τὸ μέγιστον &c.

Aristotle remarks that Xenokrates here carried his inference too far ; that the application of the same superlative predicate to A and B affords indeed a presumption that they are *Idem numero*, but not a conclusive proof thereof ; that the predicate might be applied in like manner, if B were a species comprised in A as genus.

Xenokrates made the mistake of drawing an affirmative conclusion from syllogistic premisses in the Second figure.

if the two be attributes, each will be predicable of the same subjects of which the other is predicable. Both will be comprised in the same Category, and will have the same genus and differentia. Both will increase or diminish under the same circumstances. Each, when added to or subtracted from any third subject, will yield the same result.^a

Farther, in examining the thesis (A is identical *numero* with B) you must look not merely whether it involves actually any impossible consequences, but also whether any cases can be imagined in which it would involve such;^b whether the identity is not merely *specie* or *genere*; finally, whether the one can exist without the other.^c

Such are the various *loci* available for argument against the thesis affirming the equivocal predicate *same*. All of them may be useful when you are impugning a definition; for the characteristic of this is to declare that the defining proposition is equivalent or identical with the defined name; and, if you can disprove such identity, you upset the definition. But these *loci* will be of little avail, if your task is to defend or uphold a definition; for, even if you succeed in establishing the above-mentioned identity, the definition may still be open to attack for other weaknesses or defects.^d

To uphold, or prove by way of syllogism, requires a

^a Topic. VII. i. p. 152, a. 31-b. 16.

^b Ibid. b. 17-24. Aristotle illustrates this *locus* as follows:—Some say that to be *void*, and to be *full of air*, are the same. But suppose the air to be drawn away; then the place will no longer be full of air, yet it will still be void, even more than it was before. One of the two terms declared to be identical is thus withdrawn, while the

other remains. Accordingly, the two are not really identical. This illustration fits better to the principle laid down, b. 34: εἰ δυνατόν θάτερον ἄνευ θατέρου εἶναι· οὐ γὰρ ἂν εἴη ταυτόν.

^c Ibid. b. 25-35.

^d Ibid. ii. p. 152, b. 36-p. 153, a. 5. πάντες οἱ πρὸς ταῦτον ἀνασκευαστικοὶ τόποι καὶ πρὸς ὅρον χρήσιμοι—τῶν δὲ κατασκευαστικῶν τόπων οὐδεὶς χρησῖμος πρὸς ὅρον &c.

different procedure. It is a task hard, but not impossible. Most disputants assume without proving their definition, in the same way as the teachers of Geometry and Arithmetic do in their respective sciences. Aristotle tells us that he does not here intend to give a didactic exposition of Definition, nor of the proper way of defining accurately or scientifically. To do this (he says) belongs to the province of Analytic; while in the present treatise he is dealing merely with Dialectic. For the purposes, then, of Dialectic, he declares that syllogistic proof of a definition is practicable, inasmuch as the definition is only a proposition declaring what is essential to the definiend; and nothing is essential except genus (or genera) and differentiæ.^a

Towards the establishment of the definition which you have to defend, you may find arguments by examining the Contraries and Opposites of the component terms, and of the defining proposition. If the opposite of the definition is allowed as defining properly the opposite of the definiend, you may argue from hence that your own definition is a good one.^b If you can show that there is declared in your definition a partial correspondence of contraries either separately in the genus, or separately in the differentia, you have a certain force of argument in your favour; and, if you can make out both the two separately, this will suffice for your entire definition.^c You may also draw arguments from the Derivatives, or Co-ordinates of your own

^a Topic. VII. iii. p. 153, a. 6-22. Compare Analyt. Post. II. iii.-x., where the theory of Scientific Definition is elaborately worked out; supra, Vol. I. ch. viii. pp. 346-353.

^b Ibid. a. 28: *εἰ γὰρ ὁ ἀντικείμενος τοῦ ἀντικείμενου, καὶ τὸν εἰρημένον τοῦ*

προκειμένου ἀνάγκη εἶναι (ὅρον).

^c Ibid. b. 14: *καθόλου δ' εἰπεῖν, ἐπεὶ ὁ ὁρισμὸς ἐστὶν ἐκ γένους καὶ διαφορῶν, ἀν ὁ τοῦ ἐναντίου ὁρισμὸς φανερός ᾗ, καὶ ὁ τοῦ προκειμένου ὁρισμὸς φανερός ᾖ.*

terms; from Analogous Terms, or from Comparates (More or Less). If the definition of any one of these is granted to you, an argument is furnished for the defence of an analogous definition in the case of your own term. If it is conceded as a good definition that forgetfulness is—the casting away of knowledge, then the definition must also hold good that to forget is—to cast away knowledge. If destruction is admitted to be well defined—dissolution of essence, then to be destroyed is well defined—to be dissolved as to essence. If the wholesome may be defined—that which is productive of health, then also the profitable may be defined—that which is productive of good; that is, if the declaration of the special end makes a good definition in one case, so it will also in the other.^a

These *loci*, from *Analogia*, from Derivatives, from Conjugates, are of the most frequent avail in dialectical debates or definitions. The disputant must acquire promptitude in the employment of them. He must learn, moreover, to test a definition tendered to him by calling to mind particulars and sub-species, so as to determine whether the definition fits them all. Such a procedure will be found especially serviceable in debate with one who upholds the Platonic Ideas. Care must also be taken to see whether the definiend is distorted from its proper signification, or whether it is used in defining itself.^b

These last observations are addressed to the questioner or assailant of the definition. We have already seen however that his task is comparatively easy; the grand difficulty is to defend a definition. The re-

^a Topic. VII. iii. p. 153, b. 25-p. 154, a. 11: ἔτι ἐκ τῶν πτώσεων καὶ τῶν συστοίχων ἀνάγκη ἀκολουθεῖν τὰ γένη τοῖς γένεσιν καὶ τοὺς ὄρους τοῖς ὄροις.—ἐνὸς οὖν ὁποιοῦν τῶν εἰρημένων ὁμο-λογηθέντος, ἀνάγκη καὶ τὰ λοιπὰ ὁμο-λογεῖσθαι.—καὶ ἐκ τῶν ὁμοίως ἐχόντων πρὸς ἄλληλα—ὁμοίως γὰρ ἕκαστον τῶν εἰρημένων πρὸς τὸ οἰκείον τέλος ἔχει.

^b Ibid. iv. p. 154, a. 12-22.

spondent cannot at once see what he ought to aim at; and, even when he does see it, he has farther difficulty in obtaining the requisite concessions from his opponent, who may decline to grant that the two parts of the definition tendered are really the genus and differentia of the definiend; while, if there be any thing besides these two parts contained in the essence of the definiend, there is an excuse for declining to grant it.^a The opponent succeeds, if he can establish one single contradictory instance; accordingly, a syllogism with particular conclusion will serve his purpose. The respondent, on the other hand, must meet each one of these instances, must establish an universal conclusion, and must show that his definition reciprocates with the definiend, so that, wherever the latter is predicable, the former is predicable likewise, and not in any other case whatever.^b

So much greater are the difficulties belonging to the defence of a Definition, as compared with the attack upon it; and the same may be said about attack and defence of a Proprium, and of a Genus. In both cases, the assailant will carry his point, if he can show that the predicate in question is not predicable, in this relation, of all, or that it is not predicable, in this relation, of any one. But the defendant is required to make good the universal against every separate objection advanced against any one of the particulars. It is a general rule, that the work of destruction is easier than that of construction; and the present cases come under that rule.^c The hardest of all theses to defend, and

^a Topic. VII. v. p. 154, a. 23, seq.
καὶ γὰρ ἰδεῖν αὐτὸν καὶ λαβεῖν παρὰ
τῶν ἐρωτωμένων τὰς τοιαύτας προτά-
σεις οὐκ εὐπετές, &c.

^b Ibid. a. 32-b. 12.

^c Ibid. b. 13-32. *ἔοικε δ', ὥσπερ*
καὶ ἐν τοῖς ἄλλοις τὸ διαφθεῖραι τοῦ
ποιῆσαι ῥᾶον, οὕτω καὶ ἐπὶ τούτων τὸ
ἀνασκευάσαι τοῦ κατασκευάσαι.

the easiest to overthrow, is where Definition is affirmed; for the respondent in this case is required to declare well the essence of his subject, and he stands in need of the greatest number of auxiliary data; while all the *Loci* for attack, even those properly belonging to the Proprium, the Genus, and the Accident, are available against him.^a Next in order, as regards difficulty of defence, comes the thesis affirming Proprium; where the respondent has to make out, not merely that the predicate belongs to the subject, but that it belongs thereunto exclusively and reciprocally: here also all the *Loci* for attack, even those properly belonging to Accident, are available.^b Easiest of all theses to defend, while it is the hardest to impugn, is that in which Accident alone is affirmed—the naked fact, that the predicate A belongs to the Subject B, without investing it with the character either of Genus or Proprium. Here what is affirmed is a minimum, requiring the smallest array of data to be conceded; moreover, the *Loci* available for attack are the fewest, since many of those which may be employed against Genus, Proprium, and Definition, have no application against a thesis affirming merely Accident.^c Indeed, if the thesis affirmed be only a proposition particular (and not universal), affirming Accident (and nothing more), the task of refuting it will be more difficult than that of maintaining it.^d

^a Topica, VII. v. p. 155, a. 3-21: φανερόν δὲ καὶ διότι πάντων ῥᾶστον ὅρον ἀνασκευάσαι.

^b Ibid. a. 23-27. Aristotle has in view the most complete Proprium: belonging *omni, soli, et semper*.

^c Ibid. a. 28-36: ῥᾶστον δὲ πάντων κατασκευάσαι τὸ συμβεβηκός: — ἀνασκευάζειν δὲ χαλεπώτατον τὸ

συμβεβηκός, ὅτι ελάχιστα ἐν αὐτῷ δέδοται, &c.

^d Ibid. p. 154, b. 36-p. 155, a. 2: τὸ δ' ἐπὶ μέρους ἀνάπαλιν ῥᾶστον κατασκευάσαι ἢ ἀνασκευάσαι: κατασκευάζοντι μὲν γὰρ ἀπόχρη δειξαι τινὲς ὑπάρχον, ἀνασκευάζοντι δὲ δεικτέον ὅτι οὐδενὶ ὑπάρχει.

VIII.

The Eighth Book of the Topica brings our attention back to the general considerations contained in the First. In the intervening part of the treatise we have had the quadruple distribution of dialectical problems, with the enumeration of those *Loci* of argument which bear upon each or all: we are now invited to study the application of these distinctions in practice, and with this view to look once more both at the persons and the purposes of dialectical debate. What is the order of procedure most suitable, first, for the questioner or assailant; next, for the respondent or defender?^a This order of procedure marks the distinctive line of separation between the dialectician and the man of science or philosopher: to both of them the *Loci* of arguments are alike available, though each of them deals with these arguments in his own way, and in an arrangement suitable for his purpose.^b The dialectician, being engaged in debate, must shape his questions, and regulate his march as questioner, according to the concessions obtained or likely to be obtained from his respondent; who, if a question be asked having an obvious refutative bearing on the thesis, will foresee the consequences of answering in the affirmative, and will refuse to grant what is asked. On the contrary, the philosopher, who pursues investigation with a view to his own satisfaction alone, is under no similar restriction. He looks out at once for such premisses as conduct straight to a conclusion; and, the more obvious their bearing on the conclusion is, the more scientific will the syllogism be, and the better will he be pleased.^c

^a Topica, VIII. i. p. 155, b. 3: μετὰ δὲ ταῦτα περὶ τάξεως, καὶ πῶς δεῖ ἐρωτᾶν, λεκτέον.

^b Ibid. b. 7: μέχρι μὲν οὖν τοῦ εὐρεῖν τὸν τόπον, ὁμοίως τοῦ φιλοσόφου καὶ

τοῦ διαλεκτικοῦ ἢ σκέψις, τὸ δ' ἤδη ταῦτα τάττειν καὶ ἐρωτηματίζειν ἴδιον τοῦ διαλεκτικοῦ.

^c Ibid. b. 10-16.

In the *praxis dialectica* (as has already been stated) two talkers are assumed—the respondent who sets up a thesis which he undertakes to defend, and a questioner who interrogates with a view to impugn it; or at least with a view to compel the other to answer in an inconsistent or contradictory manner. We are to assume, farther, a circle of listeners, who serve to a certain extent as guarantees against any breach of the rules of debate.* Three distinct purposes may be supposed in the debate. 1. You as questioner may be a teacher, and the respondent a learner; your purpose is to teach what you know, while he wishes to learn from you what he does not know. 2. You engage in an intellectual contest or duel with the respondent, each of you seeking only victory over the other, though subject on both sides to observance of the rules of debate. 3. You neither seek to teach, nor to conquer; you and the respondent have both the same purpose—to test the argumentative consequences of different admissions, and to acquire a larger command of the chains of reasoning *pro* and *con*, bearing on some given topic.^b

According as the aim of the talkers is one or other of these three, the good or bad conduct of the dialogue, on the part both of questioner and of respondent, must be differently appreciated. Of each of the three, specimens may be found in Plato, though not carefully severed but running one into the other. Aristotle appears to have been the first to formulate the distinction theoretically, and to prescribe for the practice of each separately. He tells us particularly that no one before him had clearly distinguished the third head, and prescribed

* Topic. VIII. ii. p. 158, a. 10.

^b Ibid. v. p. 159, a. 26: οὐ γὰρ οἱ αὐτοὶ σκοποὶ τοῖς διδάσκουσιν ἢ μα-

θάνουσι καὶ τοῖς ἀγωνιζομένοις, οὐδὲ τοῖς τε καὶ τοῖς διατρίβουσι μετ' ἀλλήλων σκέψεως χάριν.

for it apart from the second. The merit of having first done this he expressly claims for the Topica.*

Both the questioner and the respondent have a duty towards the dialogue; their common purpose is to conduct it well, not only obeying the peremptory rules, but displaying, over and above, skill for the attainment of their separate ends. Under the first and third heads, both may be alike successful. Under the second or contentious head, indeed, one only of the two can gain the victory; yet, still, even the defeated party may exhibit the maximum of skill which his position admits. This is sufficient for his credit; so that the common work will still be well performed.^b But a partner who performs his own part so as to obstruct instead of forwarding this common work—who conducts the debate in a spirit of ill-tempered contention rather than of regular Dialectic—deserves censure.^c

Having thus in view the dialogue as a partnership for common profit, Aristotle administers counsel to the questioning as well as to the responding partner. You as questioner have to deal with a thesis set up by the respondent. You see at once what the syllogism is that is required to prove the contrary or contradictory of that thesis; and your business is so to shape your questions as to induce the respondent to concede the premisses necessary towards that syllogism. If you ask

* Topic. VIII. v. p. 159, a. 25-37: *ἐπεὶ δ' ἐστὶν ἀδιόριστα τοῖς γυμνασίας καὶ πείρας ἕνεκα τοὺς λόγους ποιούμενοι—ἐν δὲ ταῖς διαλεκτικαῖς συνόδοις τοῖς μὴ ἀγῶνος χάριν ἀλλὰ πείρας καὶ σκέψεως τοὺς λόγους ποιουμένοις, οὐ διήρθρωται πῶς τίνος δεῖ στοχάζεσθαι τὸν ἀποκρινόμενον καὶ ὅποια διδόναι καὶ ποῖα μὴ, πρὸς τὸ καλῶς ἢ μὴ καλῶς φυλάττειν τὴν θέσιν. ἐπεὶ οὖν οὐδὲν ἔχομεν παραδεδομένον*

ὑπ' ἄλλων, αὐτοὶ τι πειραθῶμεν εἰπεῖν.

^b Ibid. xi. p. 161, a. 19-b. 10: *ὡς γὰρ ἔστιν ἐπὶ θατέρῳ μόνον τὸ καλῶς ἐπιτελεσθῆναι τὸ κοινὸν ἔργον—ἐπεὶ δὲ φαῦλος κοινωνὸς ὁ ἐμποδίζων τὸ κοινὸν ἔργον, ὅλον ὅτι καὶ ἐν λόγῳ. Compare Topica, I. iii. p. 101, b. 8.*

^c Ibid. a. 33: *διαλεκτικῶς καὶ μὴ ἐριστικῶς.—b. 2-18.*

him at once and directly to concede these premisses, he sees your drift and answers in the negative. You must therefore begin your approaches from a greater distance. You must ask questions bearing only indirectly and remotely upon your ultimate conclusion.^a These outlying and preparatory questions will fall under four principal heads. Either (1) they will be inductive particulars, multiplied in order that you may obtain assent to an universal comprising them all; or (2) they will be put for the purpose of giving dignity to your discourse; or (3) they will be shaped with a view to conceal or keep out of sight the ultimate conclusion that you aim at; or (4), lastly, they will be introduced to make your whole argument clearer.^b The third of these four general heads—the head of questions for the purpose of concealment—comes out principally in dialectical contests for victory. In those it is of supreme importance, and the result depends much on the employment of it; but even in other dialectical debates you must employ it to a certain extent.^c

Aristotle goes at great length into the means of Concealment. Suppose the proposition which you desire to get conceded is, The science of two contraries is the same. You will find it useful to commence by a question more general: *e.g.*, Is the science of two opposites the same? If the respondent answers in the affirmative, you will deduce from his concession, by syllogism, the conclusion which you desire. If he answers in the negative, you must then try to arrive at your end by a string of questions respecting particular contraries or opposites; which if the respondent grants successively, you

^a Topic. VIII. i. p. 155, b. 29: τὰς μὲν οὖν ἀναγκαίαις, δι' ὧν ὁ συλλογισμός, οὐκ εὐθὺς αὐτὰς προταίον, ἀλλ' ἀποσταίον ὅτι ἀνωτάτω, &c.

^b Ibid. b. 20.

^c Ibid. b. 26.

will bring in your general question ultimately as the inductive result from those concessions.^a Your particulars must be selected from obvious matters of sense and notoriety. You are likely to obtain in this way admissions which will serve as premisses for several different prosyllogisms, not indeed sufficient by themselves, yet valuable as conditions and preliminaries to the final syllogism whereby the thesis is refuted. For, when the questions are put in this way, the respondent will not see your drift nor the consequences of his own concessions; so that he will more readily concede what you want.^b The better to conceal your purpose, you will refrain from drawing out any of these prosyllogisms clearly at once; you will not even put the major and minor premiss of any one of them in immediate sequence; but you will confound the order of them intentionally, stating first a premiss belonging to one, and next a premiss belonging to another.^c The respondent, thus kept in the dark, answers in the affirmative to each of your questions successively. At length you find that you have obtained a sufficient number of concessions from him, to enable you to prove the syllogism contradictory of his thesis. You inform him of this; and it shows the perfect skill and success of your procedure, when he expresses surprise at the announcement, and asks on what premisses you reckon.^d

There are also other manœuvres serving your purpose of concealment, and preventing the respondent

^a Topic. VIII. i. p. 155, b. 34: *ἀν δὲ μὴ τιθῇ, δι' ἐπαγωγῆς ληπτέον, προτείναντα ἐπὶ τῶν κατὰ μέρος ἐναντίων.*

^b Ibid. p. 156, a. 7: *κρύπτοντα δὲ προσυλλογίζεσθαι δι' ὧν ὁ συλλογισμὸς τοῦ ἐξ ἀρχῆς μέλλει γίνεσθαι, καὶ ταῦτα ὡς πλείεστα.*

^c Ibid. a. 23: *χρήσιμον δὲ καὶ τὸ*

μὴ συνεχῇ τὰ ἀξιώματα λαμβάνειν ἐξ ὧν οἱ συλλογισμοί, ἀλλ' ἐναλλάξ τὸ πρὸς ἕτερον καὶ ἕτερον συμπέρασμα.

^d Ibid. a. 13: *καθόλου δ' εἰπεῖν, οὕτω δὲ ἐρωτᾶν τὸν κρυπτικῶς πυρ-θανόμενον, ὥστ' ἡρωτημένου τοῦ παντὸς λόγου καὶ εἰπόντος τὸ συμπέρασμα ζητεῖσθαι τὸ διὰ τί.*

from seeing beforehand the full pertinence of your questions. Thus, if you wish to obtain the definition of your major, you will do well to ask the definition, not of the term itself but, of some one among its conjugates. You will put your question, as if the answer were of little importance in itself, and as if you did not care whether it was given in the affirmative or in the negative;^a you will sometimes even suggest objections to that which you are seeming to aim at. All this will give you the air of a candid disputant; it will throw the respondent off his guard, and make him more ready to answer as he really thinks, without alarm for the consequences.^b When you wish to get a certain premiss conceded, you will put the question first upon a different premiss analogous to it. In putting your question, you will add that the answer which you desire is a matter of course, familiar and admitted by every one; for respondents are shy of contradicting any received belief, unless they have present to their minds a clear instance adverse to it.^c You will never manifest apparent earnestness about an answer; which would make the respondent less willing to concede it.^d You will postpone until the last the premiss which you wish to obtain, and will begin by putting questions the answers to which serve as remote premisses behind it, only in the end conducting to it as consequence. Generally speaking, questioners do the reverse, putting first the questions about which they are most anxious; while most respon-

^a Topic. VIII. i. p. 156, b. 6: ἀπλῶς δ' εἰπεῖν, ὅτι μάλιστα ποιεῖν ἀδηλον, πότερον τὸ προτεινόμενον ἢ τὸ ἀντικείμενον βούλεται λαβεῖν· ἀδήλου γὰρ ὄντος τοῦ πρὸς τὸν λόγον χρησίμου, μᾶλλον τὸ δοκοῦν αὐτοῖς τιθέασιν.

^b Ibid. b. 18: δεῖ δὲ καὶ αὐτὸν ποτε αὐτῷ ἔνστασιν φέρειν· ἀνυπόπτως γὰρ

ἔχουσιν οἱ ἀποκρινόμενοι πρὸς τοὺς δοκοῦντας δικαίως ἐπιχειρεῖν.

^c Ibid. b. 10, 20: χρήσιμον δὲ καὶ τὸ ἐπιλέγειν ὅτι σύνηθες καὶ λεγόμενον τὸ τοιοῦτον· ὁκνοῦσι γὰρ κινεῖν τὸ εἰωθός, ἔνστασιν μὴ ἔχοντες.

^d Ibid. b. 23: ἔτι τὸ μὴ σπουδάζειν.

dents, aware of this habit, are most intractable in regard to the first questions, except some presumptuous and ill-tempered disputants, who concede what is asked at first but afterwards become obstinate in denegation.^a You will throw in some irrelevant questions with a view to lengthen the procedure, like fallacious geometers who complicate a diagram by drawing unnecessary lines. *Amidst a multitude of premisses falsehood is more likely to escape detection*; and thus, also, you may perhaps be able to slip in, unperceived and in a corner, some important premiss, which, if put as a separate question by itself, would certainly not have been granted.^b

Such are the multifarious suggestions addressed by Aristotle to the questioner for concealing his method of attack;^c Concealment being the third of the four general heads relating to the treatment of premisses not immediately necessary for proof of the final refutative conclusion. On the other three general heads—Induction from particulars to an universal, Dignity, Clearness—Aristotle goes into less detail. For Clearness, he recommends that examples should be introduced; especially familiar examples, taken from well-known poets like Homer, not from obscure poets like Chærilus.^d

In regard to Induction, Aristotle points out an embarrassment often arising from the want of suitable universal names. When, after having obtained an affirmative answer about several similar particulars, you wish to put a question generalizing the result, you will sometimes find no universal term fitting the

^a Topic. VIII. i. p. 156, b. 30-39: καὶ τὸ ἐπ' ἐσχάτῳ ἐρωτῶν ὁ μάλιστα βούλεται λαβεῖν &c.

^b Ibid. p. 157, a. 1-5: ἔτι τὸ μηκύνειν καὶ παρεμβάλλειν τὰ μηδὲν χρήσιμα πρὸς τὸν λόγον, καθάπερ οἱ ψευδογραφοῦντες· πολλῶν γὰρ ὄντων

ἄδηλον ἐν ὁποίῳ τὸ ψεῦδος. διὸ καὶ λαμβάνουσιν ἐνίοτε οἱ ἐρωτῶντες ἐν παραβύσσει προστιθέντες ἅ καθ' αὐτὰ προτεινόμενα οὐκ ἂν τεθείη.

^c Ibid. a. 6: εἰς μὲν οὖν κρίψιν τοῖς εἰρημένοις χρηστέον, &c.

^d Ibid. a. 14.

position. You are obliged to say: Will it not be so in all such cases? and this lets in a serious difficulty, how to know what other cases are like, and what are not. Here the respondent will often dispute your right to include this or that other particular.* You will do well to coin a new universal term fitting the situation.

If the respondent answers in the affirmative to several questions of similar particulars, but answers in the negative when you sum them up in an universal comprehending all similar cases,—you may require him to cite some particular case justifying his denial; though you cannot require him to do this before he has made the affirmative answers.^b It is not sufficient that he should cite, as the single case of exception, the express case which forms the subject of the thesis. He ought to produce some distinct and independent instance, really comprised within the genus, and not merely connected with it by the link of an equivocal term.^c If he produces an adverse instance really comprised within the genus, you may perhaps be able to re-model your question, so as to make reserve for the basis on which this objection is founded. The respondent will then be compelled (unless he can foresee some new case of objection) to concede the universal with this special qualification; so that you will have gained all that you really require. Should the respondent continue to refuse, without producing any new case, he will transgress the rules of Dialectic; which recognize an universal affirmative, wherever there are numerous affirmative particulars without one assignable negative.^d Indeed, if you know the universal to hold in many

* Topic. VIII. ii. p. 157, a. 18-33.
 διὸ πειρατέον ἐπὶ πάντων τῶν τοιού-
 των ὀνοματοποιεῖν αὐτόν, &c.

^b Ibid. a. 34-37.

^c Ibid. a. 37-b. 8.

^d Ibid. b. 8-33. διαλεκτικὴ γάρ
 ἐστὶ πρότασις πρὸς ἣν οὕτως ἐπὶ πολ-
 λῶν ἔχουσιν μὴ εἶναι ἐνστάσις.

particular cases, and do not know of any others adverse, you may boldly put your question at once in reference to the universal (without going first through the series of particulars). The respondent will hardly venture to deny it, not having in his mind any negative particulars.*

You must however keep in mind what a dialectic universal premiss really is. Not every question requiring an universal answer is allowed to be put. You must not ask for positive information, nor put such questions as the following: What is man? In how many different senses is good employed? A dialectic question is one to which the respondent makes sufficient reply by saying, Yes or No.^b You must ask in this form: Is the definition of man so and so? Is good enunciated in this or that different sense? To these questions the respondent may answer Yes or No. But if he persists in negative answers to your multiplied questions as to this or that sense of the term good, you may perhaps stand excused for asking him: "In how many different senses, then, do you yourself use the term good?"^c

When you have obtained concessions which furnish premisses for a formal syllogism, you will draw out and propound that syllogism and its conclusion forthwith, without asking any farther question from the respondent or any leave from him to do so. He may indeed deny your right to do this, in spite of the concessions which he has made; and the auditors around, not fully appreciating all his concessions, may perhaps think that he is entitled to deny it. But, if you ask his leave to draw out the syllogism and he refuses to give leave, the auditors are much more likely to think that

* Topic. VIII. ii. p. 158, a. 3-6.

^b Ibid. p. 158, a. 14, seq. ἔστι γὰρ πρότασις διαλεκτικὴ πρὸς ἣν ἔστιν ἀποκρί-
νασθαι ναὶ ἢ οὐ.

^c Ibid. a. 21-24.

your syllogism is not allowable.* If you have the choice between an ostensive syllogism and a *Reductio ad Absurdum*, you ought always to prefer the former, as plainer and more incontestable.^b

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You must not persevere long in the same line of questions. For, if the respondent answers them all, it will soon appear that you are in the wrong course, since your syllogism, if you can get one at all, will always be obtained from a small number of premisses; and, if the respondent will not answer them, you have no alternative except to protest and desist.^c

The theses that are most difficult to attack are also most easy to defend; and these are the highest universals, and the lowest particulars. The highest you cannot deal with, unless you can get a definition of them; which is sometimes impossible and always difficult, since the respondent will neither define them himself nor accept your definitions. Those which are next to the highest are also difficult to impugn, because there are few intermediate steps of proof. Again, the lowest particulars are also difficult for the contrary reason, that there are so many intermediate steps, and it is tedious to enumerate them all continuously; while, if any are omitted, the demonstration is incomplete, and the procedure will appear sophistical.^d The most difficult of all to impugn are definitions framed in vague and unintelligible terms, where you do not know whether they are univocal or equivocal, literal or metaphorical. When the thesis tendered to you presents such difficulty, you may presume that it is affected with the obscurity of terms here indicated; or, at any rate, that

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* Topic. VIII. ii. p. 158, a. 7-12:
οὐ δέῃ δὲ τὸ συμπέρασμα ἐρώτημα
ποιεῖν· εἰ δὲ μή, ἀνανεύσαντος οὐ δοκεῖ
γεγεῖναι συλλογισμός.

^b Ibid. b. 34-p. 158, a. 2.

* Ibid. p. 158, a. 25-30.

^d Ibid. iii. p. 158, a. 31, seq. ἡ σο-
φισματώδη φαίνεται τὰ ἐπιχειρήματα.

its terms stand in need of definition.* In geometrical construction, as well as in dialectical debate, it is indispensable that the *principia* or primary terms should be defined, and defined properly; without this, neither the one nor the other can be pursued.^b

Sometimes the major and minor premisses of your syllogistic conclusion are more difficult to establish—more beyond the level of average intelligence—than the thesis itself. In such a case some may think that the respondent ought to grant these premisses, because, if he refuses and requires them to be proved, he will be imposing upon the questioner a duty more arduous than the thesis itself imposes; others may say that he ought not to grant them, because, if he did, he would be acknowledging a conclusion derived from premisses requiring proof as much or more than itself.^c A distinction must here be made. If you are putting questions with a view to teach, the learner ought not to grant such premisses as those above described, because he is entitled to require that in every step of the process he shall be conducted from what is more knowable to what is less knowable. Accordingly, when you attempt to demonstrate to him something which he knows little, by requiring him to concede something which he knows still less, he cannot be advised to grant what you ask. But, if you are debating with a companion for the purpose of dialectical exercise, he ought to grant what you ask whenever the affirmative really appears to him true.^d

* Topic. VIII. iii. p. 158, b. 8-23; p. 159, a. 3: οὐκ οὐκ δεῖ λαμβάνειν, ὅταν δυσσεπιχείρητος ἢ ἡ θέσις, ὅτι πέπονθε τι τῶν εἰρημένων.

^b Ibid. p. 158, b. 24-p. 159, a. 2.

^c Ibid. p. 159, a. 4-11. ὅταν δ' ἢ πρὸς τὸ ἀξίωμα καὶ τὴν πρότασιν μείζον ἔργον διαλεγῆται ἢ τὴν θέσιν, διαπορήσειεν ἂν τις πότερον θετόν τὰ τοιαῦτα ἢ οὐ· &c.

^d Ibid. a. 11-14: ἡ τῷ μὲν μαθάνοντι οὐ θετόν, ἀν μὴ γνωριμώτερον ἢ, τῷ δὲ γυμναζομένῳ θετόν, ἀν ἀληθές μόνον φαίνεται. ὥστε φανερόν ἐστι οὐχ ὁμοίως ἐρωτῶντί τε καὶ διδάσκοντι ἀξιωτέον τιθέναι.

This section is obscure and difficult. I am not sure that I understand it. It seems doubtful whether the verb

We have now said enough for the purpose of instructing the questioner how to frame and marshal his interrogations. We must turn to the respondent, and point out how *he* must answer in order to do well and perform his duty to the common work of dialogue. Speaking generally, the task of the questioner is to conduct the dialogue so as to make the respondent enunciate the most improbable and absurd replies which follow necessarily from the thesis that he has undertaken to defend; while the task of the respondent is to make it appear that these absurdities follow from the thesis itself, and not from his manner of defending it. The respondent may err in one of two ways, or indeed in both together: either he may set up an indefensible thesis; or he may fail to defend it in the best manner that it really admits; or he may do both. The second is a worse error than the first, in reference to the general purpose of Dialectic.*

Aristotle distinguishes (as has been already stated) three purposes in the dialogue:—(1) Teaching and Learning; (2) Contention, where both questioner and respondent strive only for victory; (3) Investigating and Testing the consequences of some given doctrine.^b The first two of these three are dismissed rapidly. In the first, the teaching questioner has no intention of deceiving, and the pupil respondent has only to answer by granting all that appears to him true.^c In the second, Aristotle tells us only that the questioner must always appear as if he were making some point of his

τιθέναι is intended to apply to the questioner or to the respondent.

* Topic. VIII. iv. p. 159, a. 15-24:

τοῦ δ' ἀποκρινομένου τὸ μὴ δι' αὐτὸν φαίσεσθαι συμβαίνειν τὸ ἀδύνατον ἢ τὸ παράδοξον, ἀλλὰ διὰ τὴν θίσειν· εἴτερά γὰρ ἴσως ἀμαρτία τὸ θίεσθαι

πρῶτον δ μὴ δεῖ καὶ τὸ θέμενον μὴ φυλάξαι κατὰ τρόπον.

^b Ibid. v. p. 159, a. 24-28.

* Ibid. a. 29: τῷ μὲν γὰρ μανθάνοντι θετίον αἰεὶ τὰ δοκοῦντα· καὶ γὰρ οὐδ' ἐπιχειρεῖ ψεῦδος οὐδεὶς διδάσκειν.

own; while the respondent, on his side, must always appear as if no point were made against him.^a But in regard to the third head—dialogues of Search, Testing, Exercise—he is more copious in suggestions: he considers these as the proper field of Dialectic, and, as we saw, claims to have been the first who treated them apart from the didactic dialogues on one side, and the contentious on the other.^b

The thesis which the respondent undertakes to defend (in a dialogue of Search or Testing) must be either probable, or improbable, or neither one nor the other. The probability or improbability may be either simple and absolute, or special and relative—in the estimation of the respondent himself or of some one or more persons. Now, if the thesis be improbable, the opposite thereof, which you the questioner try to prove, must be probable; if the thesis be probable, the opposite thereof must be improbable; if the thesis be neither, its opposite will also be neither. Suppose, first, that the thesis is improbable absolutely. In that case, its opposite, which you the questioner must fish for premisses to prove, will be probable; the respondent therefore ought not to grant you any demand which is either simply improbable or less probable than the conclusion which you aim at proving; for no such concessions can really serve your purpose, since you are bound to prove your conclusion from premisses more probable than itself.^c Suppose,

^a Topic. VIII. iv. p. 159, a. 30: τῶν δ' ἀγωνιζομένων τὸν μὲν ἐρωτῶντα φαίνεσθαι τι δεῖ ποιεῖν πάντως, τὸν δ' ἀποκρινόμενον μηδὲν φαίνεσθαι πᾶσχειν.

^b Ibid. a. 32-37; xi. p. 161, a. 23-25: δυσκολαίνοντες οὖν ἀγωνιστικὰς καὶ οὐ διαλεκτικὰς ποιοῦνται τὰς διατριβάς· ἔτι δ' ἐπεὶ γυμνασίας καὶ πείρας χάριν ἀλλ' οὐ διδασκαλίας οἱ τοιοῦτοι τῶν λόγων, &c.

^c Ibid. v. p. 159, b. 9: φανερόν ὡς ἀδόξου μὲν ὄντος ἀπλῶς τοῦ κειμένου οὐ δοτέον τῷ ἀποκρινόμενῳ οὐθ' ὃ μὴ δοκεῖ ἀπλῶς, οὐθ' ὃ δοκεῖ μὲν ἦττον δὲ τοῦ συμπεράσματος δοκεῖ. ἀδόξου γὰρ οὐσης τῆς θέσεως ἔνδοξον τὸ συμπέρασμα, ὥστε δεῖ τὰ λαμβανόμενα ἔνδοξα πάντ' εἶναι καὶ μᾶλλον ἔνδοξα τοῦ προκειμένου, εἰ μέλλει διὰ τῶν γνωριμωτέρων τὸ ἦττον

next, that the thesis is probable absolutely. In that case, the opposite conclusion, which you have to make out, will be improbable absolutely. Accordingly, whenever you ask concessions that are probable, the respondent ought to grant them; whenever you ask for concessions that are less improbable than your intended conclusion, he ought to grant these also; but, if you ask for any thing more improbable than your intended conclusion, he ought to refuse it.^a Suppose, thirdly, that the thesis is neither probable nor improbable. Here, too, the respondent ought to grant all concessions that appear to him probable, as well as all that he thinks more probable than the opposite conclusion which you are seeking to arrive at; but no others. This is sufficient for the purpose of Dialectic, and for keeping open the lines of probable argument.^b

When the probability or improbability of the thesis is considered simply and absolutely, the respondent ought to measure his concessions by the standard of opinion received usually.^c When the probability or improbability of the thesis is considered as referable to the respondent himself, he has only to consult his own judgment and estimation in granting or refusing what is asked. When he undertakes to defend a thesis avowedly as the doctrine of some known philosopher, such as Herakleitus, he must, in giving his answers, measure probability and improbability according to what Herakleitus would determine.^d

Since all the questions that you ask must be either

γνώριμον περαίνεισθαι. ὥστ' εἴ τι μὴ
τοιούτων ἐστὶ τῶν ἐρωτωμένων, οὐ θε-
τίον τῷ ἀποκρινομένῳ.

^a Topic. VIII. v. p. 159, b. 16.

^b Ibid. b. 19-23: ἱκανῶς γὰρ ἂν
δόξειε διειλέχθαι—οὕτω γὰρ ἐνδοξοτέ-

ρους συμβήσεται τοὺς λόγους γίνεσθαι.

^c Ibid. b. 24: πρὸς τὰ δοκοῦντα
ἀπλῶς τὴν συγκρίσιν ποιητέον.

^d Ibid. b. 25-35. πρὸς τὴν ἐκείνου
διάνοιαν ἀποβλέποντα θετέον ἕκαστα
καὶ ἀρηγτέον.

probable, improbable, or neuter, and either relevant^a or not relevant to your purpose of refuting the thesis, let us first suppose that you ask for a concession which is in itself probable, but not relevant. The respondent ought to grant it, adding that he thinks it probable. If what you ask is neither probable nor relevant, he ought even then to grant it; but annexing a notification that he is aware of its improbability, in order to save his own credit for intelligence.^b If it be both probable and relevant, he ought to say that he is aware of its probability, but that it is too closely connected with the thesis, and that, if he grants it, the thesis will stand refuted. If it be relevant yet at the same time very improbable, he must reply that, if he grants it, the thesis will be refuted, but that it is too silly to be propounded. If, being neutral, it is also not relevant, he ought to grant it without comment; but if, being neutral, it is relevant, he ought to notify that he is aware that by granting it his thesis will be refuted.^c

In this way of proceeding, the march of the dialogue on both sides will be creditable. The respondent, signifying plainly that he understands the full consequences of his own concessions, will not appear to be worsted through any short-comings of his own, but only through what is inherent in his thesis; while you the questioner, having asked for such premisses as are really more probable than the conclusion to be established, and

^a Topic. VIII. vi. p. 159. b. 39: ἡ πρὸς τὸν λόγον, ἢ μὴ πρὸς τὸν λόγον. By this phrase Aristotle seems to mean, not simply relevant, but closely, directly, conspicuously relevant—equivalent to *λίαν συνεγγὺς τοῦ ἐν ἀρχῇ* (p. 160, a. 5).

^b Ibid. b. 36-p. 160, a. 2. *εἰάν δὲ μὴ δοκοῦν καὶ μὴ πρὸς τὸν λόγον, δοτεῖον*

μέν, ἐπισημαντέον δὲ τὸ μὴ δοκοῦν πρὸς εὐλάβειαν εὐθείας.

How is this to be reconciled with what Aristotle says in the preceding chapter, p. 159, b. 11-18, that the respondent ought not to grant such improbabilities at all?

^c Ibid. p. 160, a. 6-11.

having had them granted, will have made out your point. It must be understood that you ought not to try to prove your conclusion from premisses less probable than itself; and that, if you put questions of this sort, you transgress the rules of dialectical procedure.*

If you ask a dialectical question in plain and univocal language, the respondent is bound to answer Yes or No. But if you ask it in terms obscure or equivocal, he is not obliged to answer thus directly. He is at liberty to tell you that he does not understand the question; he ought to have no scruple in telling you so, if such is really the fact. Suppose the terms of your question to be familiar, but equivocal; the answer to it may perhaps be either true or false, alike in all the different senses of the terms. In that case, the respondent ought to answer Yes or No directly. But, if the answer would be an affirmation in one sense of the terms and a negation in another, he must take care to signify that he is aware of the equivocation, and to distinguish at once the two-fold meaning; for, if the distinction is not noticed till afterwards, he cannot clearly show that he was aware of it from the first. If he really was not at first aware of the equivocation, and gave an affirmative answer looking only to one among the several distinct meanings, you will try to convict him of error by pushing him on the other meaning. The best thing that he can then do will be to confess his oversight, and to excuse himself by saying that misconception is easy where the same term or the same proposition may mean several different things.^b

* Topic. VIII. vi. p. 160, a. 11-16.
 οὕτω γὰρ ὁ τ' ἀποκρινόμενος οὐδὲν δόξει
 δι' αὐτὸν πάσχειν, εἰς προορῶν ἕκαστα
 τιθεῖ, ὁ τ' ἐρωτῶν τεύξεταί συλλογισμοῦ
 τιθεμένων αὐτῷ πάντων τῶν ἐνδοξοτέρων
 τοῦ συμπεράσματος. ὅσοι δ' ἐξ ἀδοξο-

τέρων τοῦ συμπεράσματος ἐπιχειροῦσι
 συλλογίζεσθαι, δῆλον ὡς οὐ καλῶς
 συλλογίζονται διὰ τοῖς ἐρωτῶσιν οὐ
 θετίον.

^b Ibid. vii. p. 160, a. 17-34.

Suppose you put several particular questions (or several analogous questions) with the view of arriving ultimately by induction at the concession of an universal, comprising them all. If they are all both true and probable, the respondent must concede them all severally; yet he may still intend to answer No, when the universal is tendered to him after them. He has no right to answer thus, however, unless he can produce some contradictory particular instance, real or apparent, to justify him; and, if he does so without such justification, he is a perverse dialectician.^a Perhaps he may try to sustain his denegation of the universal, after having conceded many particulars, by a counter-attack founded on some chain of paradoxical reasoning such as that of Zeno against motion; there being many such paradoxes contradictory of probabilities, yet hard to refute. But this is no sufficient justification for refusing to admit the universal, when, after having admitted many particulars, he can produce no particular adverse to them. The case will be still worse, if he refuses to admit the universal, having neither any adverse instance, nor any counter-ratiocinative attack. It is then the extreme of perverse Dialectic.^b

Before the respondent undertakes to defend any thesis or definition, he ought to have previously studied the various modes of attacking it, and to have prepared himself for meeting them.^c He must also be cautious of taking up improbable theses, in either of the senses of

^a Topic. VIII. viii. p. 160, b. 2-5: τὸ γὰρ ἄνευ ἐνστάσεως, ἢ οὔσης ἢ δοκούσης, κωλύειν τὸν λόγον δυσκολαίνειν ἐστίν. εἰ οὖν ἐπὶ πολλῶν φαινομένων μὴ δίδωσι τὸ καθόλου μὴ ἔχων ἐνστάσιν, φανερόν ἐστι δυσκολαίνειν.

^b Ibid. b. 5, seq.: ἔτι εἰ μὴδ' ἀντεπιχειρεῖν ἔχει ὅτι οὐκ ἀληθές, πολλῶ

μᾶλλον ἂν δόξειε δυσκολαίνειν. καίτοι οὐδὲ τοῦθ' ἱκανόν· πολλοὺς γὰρ λόγους ἔχομεν ἐναντίους ταῖς δόξαις, οὐδε χαλεπὸν λύνειν, καθάπερ τὸν Ζήνωνος ὅτι οὐκ ἐνδέχεται κινεῖσθαι οὐδὲ τὸ στάδιον διελθεῖν· ἀλλ' οὐ διὰ τοῦτο τὰντικείμενα τούτοις οὐ θετέον.

^c Ibid. ix. p. 160, b. 14.

improbable. For a thesis is so called when it involves strange and paradoxical developments, as if a man lays down either that every thing is in motion or that nothing is in motion; and also, when it implies a discreditable character and is contrary to that which men wish to be thought to hold, as, for example, the doctrine that pleasure is the good, or that it is better to do wrong than to suffer wrong. If a man defends such theses as these, people hate him because they presume that he is not merely propounding them as matter for dialectical argument, but advocating them as convictions of his own.^a

The respondent must farther be able, if you bring against him a false syllogistic reasoning, to distinguish upon which among your premisses the false conclusion really turns, and to refute that one. Your reasoning may have more than one false premiss; but he must not content himself with refuting any one or any other: he must single out that one which is the chief determining cause of the falsehood. Thus, if your syllogism be:—Every man in a sitting position is writing, Sokrates is a man in a sitting position; therefore, Sokrates is writing,—it will not suffice that the respondent should refute your minor premiss, though this may be false;^b because such a refutation will not apply to the number of other cases in which men are sitting but not writing; and therefore it will not expose the full bearing of the falsehood. Your major premiss is that upon which the full bearing of the falsehood depends; and the respondent must show that he is aware of this by refuting your major.^c

^a Topica, VIII. ix. p. 160, b. 17-22: ἄδοξον δ' ὑπόθεσιν εὐλαβητέον ὑπέχειν· ἔστι τὸ ἀναιρούμενον· ἔχει γὰρ ἂν πλείων ψευδῇ ὁ λόγος.

εἴη δ' ἂν ἄδοξος διχῶς· &c.

^b Ibid. b. 30-39. οἶδε δὲ τὴν λύσιν

^c Ibid. x. p. 160, b. 23-26. οὐ γὰρ ὁ εἰδὼς ὅτι παρὰ τοῦτο ὁ λόγος—οὐ γὰρ ἀπόχρη τὸ ἐνστήναι, οὐδ' ἂν ψεύ-

This last-mentioned proceeding—refutation of that premiss upon which your false conclusion in its full bearing really turns—is the only regular, valid, and complete objection whereby the respondent can stop out your syllogistic approaches. There are indeed three other modes of objection to which he may resort; but these are all either inconclusive or unfair. He may turn his objection against you personally; and, without refuting any of your premisses, he may thus perplex and confuse you, so that you are disqualified from pursuing the thread of your questions. Or he may turn his objections against portions of your questions; not refuting any one of your premisses, but showing that, as they stand, they are insufficient to warrant the conclusion which you seek to establish; when, if you are master of your subject, and retain your calmness, you will at once supply the deficiency by putting additional questions, so that his objection thus vanishes. Or, lastly, he may multiply irrelevant objections against time, for the purpose of prolonging the discussion and tiring you out.^a Of these four modes of objection open to the respondent the first is the only one truly valid and conclusive; the three others are obstructions either surmountable or unfair, and the last is the most discreditable of all.^b

To blame the argumentative procedure and to blame the questioner are two distinct things. Perhaps your

δος ἢ τὸ ἀναιρούμενον, ἀλλὰ καὶ διότι ψεύδος ἀποδεικτέον· οὕτω γὰρ ἂν εἶη φανερόν ποτερον προορῶν τι ἢ οὐ ποιεῖται τὴν ἔνστασιν.

^a Topic. VIII. x. p. 161, a. 1-12: ἔστι δὲ λόγον κωλύσαι συμπεράνασθαι τετραχῶς. ἡ γὰρ ἀνελόντα παρ' ὃ γίνεται τὸ ψεύδος. ἡ πρὸς τὸν ἐρωτῶντα ἔνστασιν εἰπόντα—τρίτον δὲ

πρὸς τὰ ἡρωτημένα—τετάρτη δὲ καὶ χειρίστη τῶν ἐνστάσεων ἢ πρὸς τὸν χρόνον.

^b Ibid. a. 13-15: αἱ μὲν οὖν ἐνστάσεις, καθάπερ εἶπαμεν, τετραχῶς γίνονται· λύσις δ' ἐστὶ τῶν εἰρημένων ἢ πρώτη μόνον, αἱ δὲ λοιπαὶ κωλύσεις τινές καὶ ἐμποδισμοὶ τῶν συμπερασμάτων.

manner of conducting the interrogation, preparatory to your final syllogism, may be open to censure; yet nevertheless you the questioner may deserve no censure; for it may be the respondent's fault, not yours. He may refuse to grant the very premisses which are essential to the good conduct of your case; he may resort to perverse evasions and contradictions for the mere purpose of thwarting you; so that you are forced to adapt yourself to his unworthy manœuvres rather than to aim at the thesis itself. Dialectic cannot be well conducted unless both the partners do their duty to the common purpose; the bad conduct of your respondent puts you out, and the dialectic presently degenerates on both sides into angry contention.* Apart from this, too, it must be remembered that the express purpose of Dialectic is not to teach, but to search and test consequences and to exercise the intellect of both parties. Accordingly you are not always restricted to true syllogistic premisses and conclusions. You are allowed to resort occasionally to false premisses and false conclusions; for, if what the respondent advances be true, you have no means of refuting it except by falsehood; and, if what he advances be false, the best way of refuting it may be through some other falsehood.^b You render service to him by doing so; for, since his beliefs are contrary to truth, if the dialogue is confined to his beliefs, the result may perhaps contribute to persuade him, but it will not instruct or profit

* Topic. VIII. xi. p. 161, a. 16-24. δυσκολαίνοντες οὖν ἀγωνιστικὰς καὶ οὐ διαλεκτικὰς ποιοῦνται τὰς διατριβάς. α. 37: φαῦλος κοινωνὸς ὁ ἐμποδίζων τὸ κοινὸν ἔργον.

^b Ibid. a. 24-31: ἔτι δ' ἐπεὶ γυμνασίας καὶ πείρας χάριν ἀλλ' οὐ διδασκαλίας οἱ τοιοῦτοι τῶν λόγων, δῆλον

ὡς οὐ μόνον τὰληθῆ συλλογιστέον ἀλλὰ καὶ ψεῦδος, οὐδὲ δι' ἀληθῶν ἀεὶ ἀλλ' ἐνίοτε καὶ ψευδῶν. πολλάκις γὰρ ἀληθοῦς τεθέντος ἀναιρεῖν ἀνάγκη τὸν διαλεγόμενον, ὥστε προτατέον τὰ ψευδῆ. ἐνίοτε δὲ καὶ ψεύδους τεθέντος ἀναιρετέον διὰ ψευδῶν.

him.* It is your business to bring him round and emancipate him from these erroneous beliefs; but you must accomplish this in a manner truly dialectical, and not contentious; whether you proceed by true or by false conclusions.^b If you on your side, indeed, put questions in a contentious spirit, it is you that are to blame. But often the respondent is most to blame, when he refuses to grant what he thinks probable, and when he does not apprehend what you really intend to ask.^c He is sometimes also to blame for granting what he ought to refuse; such as *Petitio Principii* or Affirmation of Contraries. It is often difficult to distinguish what questions involve *Petitio Principii* or Affirmation of Contraries: they are asked and granted without either party being aware, and the like mistake is committed by men in private talk, not merely in formal dialogue. When this happens, the argument will inevitably be a bad one; but the fault is with the respondent who, having before refused what he ought to have granted, now grants what he ought to refuse.^d

Such then are the cases in which the conduct of the dialogue is open to censure, without any fault on your part as questioner. But there are other cases in which the fault is really yours. These are five in number:—

* Topic. VIII. xi. p. 161, a. 30: οὐδὲν γὰρ κωλύει τινὶ δοκεῖν τὰ μὴ ὄντα μᾶλλον τῶν ἀληθῶν, ὥστ' ἐκ τῶν ἐκείνῃ δοκούντων τοῦ λόγου γενομένου μᾶλλον ἔσται πεπεισμένος ἢ ὠφελημένος.

^b Ibid. a. 33: δεῖ δὲ τὸν καλῶς μεταβιβάζοντα διαλεκτικῶς καὶ μὴ ἐριστικῶς μεταβιβάζειν. About τὸ μεταβιβάζειν, compare Topica, I. ii. p. 101, a. 33.

^c Ibid. b. 2: ὁ τε γὰρ ἐριστικῶς ἐρωτῶν φαύλως διαλέγεται, ὁ τ' ἐν τῇ ἀποκρίνεσθαι μὴ διδούς τὰ φαινόμενον

μὴδ' ἐκδεχόμενος ὁ τί ποτε βούλεται ὁ ἐρωτῶν πυθέσθαι.

^d Ibid. b. 11-18: ἐπεὶ δ' ἐστὶν ἀδιόριστον πότε τὰναντία καὶ πότε τὰ ἐν ἀρχῇ λαμβάνουσιν οἱ ἄνθρωποι (πολλάκις γὰρ καθ' αὐτοὺς λέγοντες τὰναντία λέγουσι, καὶ ἀνανεύσαντες πρότερον διδῶσιν ὕστερον· διόπερ ἐρωτῶμενοι τὰναντία καὶ τὸ ἐν ἀρχῇ πολλάκις ὑπακούουσιν)—ἀνάγκη φαύλους γίνεσθαι τοὺς λόγους· αἴτιος δ' ὁ ἀποκρινόμενος, τὰ μὲν οὐ διδούς, τὰ δὲ τοιαῦτα διδούς.

This passage is not very clear.

(1) When all or most of your questions are so framed as to elicit premisses either false or improbable, so that neither the conclusion which you seek to obtain, nor any other conclusion at all, follows from them; (2) When, from similar defects, the proper conclusion that you seek to obtain cannot be drawn from your premisses; (3) When that proper conclusion would follow, if certain additions were made to your premisses, but such additions are of a character worse than the premisses already obtained, and are even less probable than the conclusion itself; (4) When you have accumulated a superfluous multitude of premisses, so that the proper conclusion does not follow from all of them but from a part of them only; (5) When your premisses are more improbable and less trustworthy than the proper conclusion, or when, though true, they are harder and more troublesome to prove than the problem itself.^a

In regard to the last item, however, the fault may sometimes be in the problem itself rather than in you as questioner. Some problems, being in their own nature hard and not to be settled from probable or plausible data, ought not to be admitted into Dialectic. All that can be required from you as questioner is that you shall know and obtain the most probable premisses that the problem admits: your procedure may be thus in itself blameable, yet it may even deserve praise, having regard to the problem, if this last be very intractable; or it may be in itself praiseworthy, yet blameable in regard to the problem, if the problem admit of being settled by premisses still more probable.^b You may even be more blameable, if you obtain your conclusion but obtain it from improbable premisses,

^a Topic. VIII. xi. p. 161, b. 19-33: καθ' αὐτὸν δὲ τῷ λόγῳ πέντε εἰσὶν ἐπιμήσεις.

^b Ibid. b. 34-p. 162, a. 3.

than if you failed to obtain it; the premisses required to make it complete being true and probable and not of capital importance, but being refused by the respondent.^a However, you ought not to be blamed if you obtain your true and proper conclusion but obtain it through premisses in themselves false; for this is recognized in analytical theory as possible: if the conclusion is false, the premisses (one or both) must be false, but a true conclusion may be drawn from false premisses.^b

When you have obtained your premisses and proved a conclusion, these same premisses will not serve as proof of any other proposition separate and independent of the conclusion; such may sometimes seem to be the case, but it is a mere sophistical delusion. If your premisses are both of them probable, your conclusion may in some cases be more probable than either.^c

One other matter yet remains in which your procedure as questioner may be blameable. The premisses through which you prove your conclusion may be long and unnecessarily multiplied; the conclusion may be such that you ought to have obtained it through fewer, yet equally pertinent premisses.^d

^a Topic. VIII. xi. p. 162, a. 3-8.

^b Ibid. a. 8-11: τοῖς δὲ διὰ ψευδῶν ἀληθὲς συμπεραυνομένοις οὐ δίκαιον ἐπιτιμᾶν—φανερὸν δ' ἐκ τῶν Ἀναλυτικῶν.

^c Ibid. a. 12-24.

Aristotle here introduces four definitions of terms, which are useful in regard to his thoughts but have no great pertinence in the place where they occur: ἔστι δὲ φιλοσόφημα μὲν συλλογισμὸς ἀποδεικτικός, ἐπιχείρημα δὲ συλλογισμὸς διαλεκτικός, σόφισμα δὲ συλλογισμὸς ἐριστικός, ἀπόρημα δὲ συλλογισμὸς διαλεκ-

τικός ἀντιφάσεως.

^d Ibid. a. 24-34.

The example whereby Aristotle illustrates this position is obscure and difficult to follow. It is borrowed from the Platonic theory of Ideas. The point which you are supposed to be anxious to prove is, that one opinion is more opinion than another (ὅτι ἐστὶ δόξα μᾶλλον ἑτέρα ἑτέρας). To prove it you ask as premisses: (1) That the Idea of every class of things is more that thing than any one among the particulars of the class; (2) That there is an Idea of

The cases in which your argument will carry the clearest evidence, impressing itself even on the most vulgar minds, are those in which you obtain such premisses as will enable you to draw your final conclusion without asking any farther concessions. But this will rarely happen. Even after you have obtained all the premisses substantially necessary to your final conclusion, you will generally be forced to draw out two or more prosyllogisms or preliminary syllogisms, and to ask the assent of the respondent to these, before you can venture to enunciate the final conclusion. This second grade of evidence is however sufficient, even if the premisses fall short of the highest probability.*

On the other hand, your argument may deserve to be pronounced false on four distinct grounds:—(1) If your syllogism appears to prove the conclusion but does not really prove it, being then an *eristic* or *contentious* syllogism; (2) If the conclusion be good but not relevant to the thesis, which is most likely to happen where you employ *Reductio ad Impossibile*; (3) If your conclusion though valid and even relevant,

matter of opinion, and that this Idea is more opinion than any one of the particular matters of opinion. If this Idea is more opinion, it must also be more true and accurate than any particular matter of opinion. And it is this last conclusion that Aristotle seems to indicate as the conclusion to be proved: ὥστε αὐτῇ ἡ δόξα ἀκριβεστέρα ἐστίν (a. 32).

As I understand it, Aristotle supposes that the doctrine which you are here refuting is, that all *ἔνδοξα* are on an equal footing as to truth and accuracy; and that the doctrine which you are proving against it is, that one *ἔνδοξον* is more true and accurate than another. If you at-

tempt to prove this last by invoking the Platonic theory of Ideas, you will introduce premisses far-fetched and unnecessary, even if true; whereas you might prove your conclusion from premisses easier and more obvious.

The fault is (he says) that such roundabout procedure puts out of sight the real ground of the proof: τίς δὲ ἡ μοχθηρία; ἢ ὅτι ποιεῖ, παρ' ὃ ὁ λόγος, λαμβάνειν τὸ αἴτιον (a. 33). The dubitative and problematical form here is remarkable. How would Aristotle himself have proved the above conclusion? By Induction? He does not tell us.

* Ibid. xii. p. 162, a. 35-b. 2.

is not founded on the premisses and *principia* appropriate to the thesis; (4) If your premisses are false, even though the conclusion in itself may be true, since it has already been said that a true conclusion may sometimes be obtained from false premisses.*

Falsehood in your argument will be rather your own fault than that of your argument, especially if you yourself are not aware of its falsehood. Indeed, there are some false arguments which are more valuable in Dialectic than many true ones; where, for example, from highly probable premisses you refute some recognized truth. Such an argument is sure to serve as a demonstration of other truths; at the very least, it shows that some one of the propositions concerned is altogether untrue.^b On the other hand, if you prove a true conclusion by premisses false and improbable, your argument will be more worthless than many others in which the conclusion is false; from such premisses, indeed, the conclusion may well be really false.^c

In estimating the dialectical value of an argument, therefore, we must first look whether the conclusion is formally valid; next, whether the conclusion is true or false; lastly, what are the premisses from whence it is derived.^d For, if it be derived from premisses false yet probable, it has logical or dialectical value; while, if derived from premisses true yet improbable, it has

* Topic. VIII. xii. p. 162, b. 3-15 :
ψευδῆς δὲ λόγος καλεῖται τετραχῶς,
&c.

^b Ibid. b. 16-22: τὸ μὲν οὖν ψευδῆ
τὸν λόγον εἶναι τοῦ λέγοντος ἀμάρ-
τημα μᾶλλον ἢ τοῦ λόγου, καὶ οὐδὲ
τοῦ λέγοντος αἰετὶ τὸ ἀμάρτημα, ἀλλ'
ὅταν λανθάνῃ αὐτόν, ἐπεὶ καθ' αὐτόν
γε πολλῶν ἀληθῶν ἀποδεχόμεθα
μᾶλλον, ἢ ἐξ ὅτι μάλιστα

δοκούντων ἀναιρῆναι τῶν ἀλη-
θῶν· τοιοῦτος γὰρ ὢν ἐτέρων
ἀληθῶν ἀπόδειξις ἐστίν· δεῖ γὰρ
τῶν κειμένων τι μὴ εἶναι παντελῶς,
ὥστ' ἔσται τοῦτου ἀπόδειξις.

^c Ibid. b. 22-24.

^d Ibid. b. 24: ὥστε δῆλον ὅτι πρώτη
μὲν ἐπίσκεψις λόγου καθ' αὐτόν εἰ συμ-
περαίνεται, δευτέρα δὲ πότερον ἀληθές
ἢ ψεῦδος· τρίτη δ' ἐκ ποίων τινῶν.

none.* If derived from premisses both false and improbable, it will of course be worthless; either absolutely in itself, or with reference to the thesis under debate.

Two faults of questioners in Dialectic are dealt with specially by Aristotle:—(1) *Petitio Principii*; (2) *Petitio Contrariorum*. He had touched upon both of them (in the *Analytica Priora*) as they concerned the demonstrative process, or the proving of truth: he now deals with them as they concern the dialectical process, or the setting out of opinions and probabilities.^b

Five distinct modes may be enumerated of committing the fault called *Petitio Principii*:—

1. You may put as a question the very conclusion which it is incumbent on you to prove, in refutation of the thesis of the respondent. If this is done in explicit terms, your opponent can hardly fail to perceive it; but he possibly may fail, if you substitute an equivalent term or the definition in place of the term.^c

2. If the conclusion which you are seeking to prove is a particular one, you may put as a question the universal in which it is comprised. Thus, if you are to prove that the knowledge of Contraries is one and the same, you may put as a question, Is not the knowledge of Opposites one and the same? You are asking the very point which it was your business to show; but you are asking along with it much more besides.^d

3. If you are seeking to prove an universal con-

* Topic. VIII. xii. p. 162, b. 27: εἰ μὲν γὰρ ἐκ ψευδῶν ἐνδόξων δέ, λογικός, εἰ δ' ἐξ ὄντων μὲν ἀδόξων δέ, φαῦλος, &c.

^b Ibid. xiii. p. 162, b. 31: τὸ δ' ἐν ἀρχῇ καὶ τὰ ἐναντία πῶς αἰτεῖται ὁ ἐρωτῶν, κατ' ἀλήθειαν μὲν ἐν τοῖς Ἀναλυτικοῖς (*Priora*, II. xvi.) εἴρηται,

κατὰ δόξαν δὲ νῦν λεκτέον.

^c Ibid. b. 34. πρῶτον εἰ τις αὐτὸ τὸ δείκνυσθαι δέον αἰτήσῃ· τοῦτο δ' ἐπ' αὐτοῦ μὲν οὐ ῥᾶδιον λαμβάνειν, ἐν δὲ τοῖς συνωνύμοις, καὶ ἐν ὅσοις τὸ ὄνομα καὶ ὁ λόγος τὸ αὐτὸ σημαίνει, μᾶλλον.

^d Ibid. p. 163, a. 1.

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clusion, you may put as a question one of the particulars comprised therein. Thus, if you are to prove that the knowledge of Contraries is one and the same, you may put as a question, Is not the knowledge of white and black, good and evil, or any other pair of particular contraries, one and the same? It was your business to prove this particular, along with many others besides; but you are now asking it as a question separately.*

4. If the conclusion which you are seeking to prove has two terms conjointly, you may put as a question one or the other of these separately. Thus, when you are trying to show that the healing art is knowledge of what is wholesome and unwholesome, you may ask, Is it a knowledge of the wholesome? ^b

5. Suppose there are two conclusions necessarily implicated with each other, and that it is your business to prove one of them: you may put as a question the other of the two. Thus, if you are seeking to prove that the diagonal is incommensurable with the side, you may put as a question, Is not the side incommensurable with the diagonal? ^c

There are also five distinct modes of *Petitio Contrariorum*:—

1. You may ask the respondent, in plain terms, to grant first the affirmative, next, the negative, of a given proposition. ^d

2. You may ask him to grant, first, that a given subject is, *e.g.*, good, next, that the same subject is bad. ^e

3. After he has granted to you the affirmative universally, you may ask him to grant the negative in

* Topic. VIII. xiii. p. 163, a. 5.

^b Ibid. a. 8.

^c Ibid. a. 10.

^d Ibid. a. 14: *πρῶτον μὲν γὰρ εἴ τις τὰς ἀντικειμένας αἰτήσαιοτο φάσιν καὶ*

ἀντιφασιν.

^e Ibid. a. 16: *δεύτερον δὲ τὰναντία κατὰ τὴν ἀντίθεσιν, οἷον ἀγαθὸν καὶ κακὸν ταυτὸν.*

some particular case under the universal: *e.g.*, after he has granted that the knowledge of Contraries is one and the same, you ask him to grant that the knowledge of wholesome and unwholesome is not one and the same. Or you may proceed by the way of reversing this process.^a

4. You may ask the contrary of that which follows necessarily from the premisses admitted.^b

5. Instead of asking the two contraries in plain and direct terms, you may ask the two contraries in different propositions, yet necessarily implicated with the first two.^c

There is this difference between *Petitio Principii*, and *Petitio Contrariorum*: the first has reference to the conclusion which you have to prove, and the wrong procedure involved in it is relative to that conclusion; but in the second the wrong procedure affects only the two propositions themselves and the relation subsisting between them.^d

Aristotle now, finally, proceeds to give some general advice for exercise and practice in Dialectic. You ought to accustom yourself to treat arguments by converting the syllogisms of which they consist; that is, by applying to them the treatment of which the *Reductio ad Absurdum* is one case.^e You ought to test every thesis by first assuming it to be true, then assuming it to be false, and following out the consequences on both sides.^f

^a Topic. VIII. xiii. p. 163, a. 17-21.

^b Ibid. a. 21.

^c Ibid. a. 22.

^d Ibid. a. 24: διαφέρει δὲ τὸ τῶν ἀντία λαμβάνειν τοῦ ἐν ἀρχῇ, ὅτι τοῦ μὲν ἐστὶν ἡ ἀμαρτία πρὸς τὸ συμπέρασμα (πρὸς γὰρ ἐκεῖνο βλέποντες τὸ ἐν ἀρχῇ λέγομεν αἰτεῖσθαι), τὰ δ' ἐναντία ἐστὶν ἐν ταῖς προτάσεσι τῷ ἔχειν

πρὸς ταύτας πρὸς ἀλλήλας.

^e Ibid. xiv. p. 163, a. 29: πρὸς δὲ γυμνασίαν καὶ μελέτην τῶν τοιούτων λόγων πρῶτον μὲν ἀντιστρέφειν ἐθίζεσθαι χρὴ τοὺς λόγους. For *Conversion* of Syllogism, see Vol. I., p. 249.

^f Ibid. a. 36: πρὸς ἀπασάν τε θέσιν καὶ ὅτι οὕτως καὶ ὅτι οὐχ οὕτως τὸ ἐπιχείρημα σκεπτέον.

When you have hunted out each train of arguments, look out at once for the counter-arguments available against it. This will strengthen your power both as questioner and as respondent. It is indeed an exercise so valuable, that you will do well to go through it by yourself, if you have no companion.^a Put the different trains of argument, bearing on the same thesis, into comparison with each other. A wide command of arguments affirmative as well as negative will serve you well both for attack and for defence.^b

This same accomplishment will be of use, moreover, for acquisitions even in Science and Philosophy. It is a great step to see and grasp in conjunction the trains of reasoning on both sides of the question; the task that remains—right determination which of the two is the better—becomes much easier. To do this well, however,—to choose the true and to reject the false correctly—there must be conjoined a good natural predisposition. None but those who are well constituted by nature, who have their likings and dislikes well set in regard to each particular conjuncture, can judge correctly what is best and what is worst.^c

In regard to the primary or most universal theses, and to those problems which are most frequently put in

^a Topic. xiv. p. 163, b. 3: *κάν πρὸς μηδένα ἄλλον ἔχωμεν, πρὸς αὐτούς.*

^b Ibid. b. 5: *τοῦτο γὰρ πρὸς τε τὸ βιάζεσθαι πολλὴν εὐπορίαν ποιεῖ καὶ πρὸς τὸ ἐλέγχειν μεγάλην ἔχει βοήθειαν, ὅταν εὐπορῇ τις καὶ ὅτι οὕτως καὶ ὅτι οὐχ οὕτως· πρὸς τὰ ἐναντία γὰρ συμβαίνει ποιείσθαι τὴν φυλακὴν.*

Instead of *πρὸς τε τὸ βιάζεσθαι*, ought we not to read here *πρὸς τε τὸ μη βιάζεσθαι*, taking this verb in the passive sense? Surely *βιάζεσθαι* in the active sense gives the same mean-

ing substantially as *ἐλέγχειν*, which comes afterwards, both of them referring to the assailant or questioner, whereas Aristotle intends here to illustrate the usefulness of the practice to both parties.

^c Ibid. b. 12-16: *δεῖ δὲ πρὸς τὸ τοιοῦτο ὑπάρχειν εὐφυῖα· καὶ τοῦτ' ἔστιν ἢ κατ' ἀλήθειαν εὐφυῖα, τὸ δύνασθαι καλῶς εἰσθαι τὰληθές καὶ φυγεῖν τὸ ψεῦδος· ὅπερ οἱ πεφυκότες εὐ δύνανται ποιεῖν· εὐ γὰρ φιλοῦντες καὶ μισοῦντες τὸ προσφερόμενον εὐ κρίνουσι τὸ βέλτιστον.*

debate, you will do well to have reasonings ready prepared, and even to get them by heart. It is on these first or most universal theses that respondents become often reluctant and disgusted. To be expert in handling primary doctrines and probabilities, and to be well provided with the definitions from which syllogisms must start, is to the dialectician an acquisition of the highest moment; like familiarity with the Axioms to a geometer, and ready application of the multiplication table to an arithmetical calculator.* When you have these generalities and major propositions firmly established in your mind, you will recall, in a definite order and arrangement, the particular matters falling under each of them, and will throw them more easily into syllogisms. They will assist you in doing this, just as the mere distribution of places in a scheme for topical memory makes you recollect what is associated with each. You should lodge in your memory, however, universal major premisses rather than complete and ready-made reasonings; for the great difficulty is about the *principia*.^b

You ought also to accustom yourself to break down one reasoning into many; which will be done most easily when the theme of the reasoning is most universal. Conceal this purpose as well as you can; and in this view begin with those particulars which lie most remote from the subject in hand.^c In recording arguments for your own instruction, you will generalize

* Topic. VIII. xiv. p. 163, b. 17-26.

^b Ibid. b. 27-33 : ὁμοίως καὶ ἐν τοῖς λόγοις τὸ πρόχειρον εἶναι περὶ τὰς ἀρχὰς καὶ τὰς προτάσεις ἀπὸ στόματος ἐξεπίστασθαι· καθάπερ γὰρ ἐν τῇ μνημονικῇ μόνον οἱ τόποι τεθέντες εὐθὺς ποιοῦσιν αὐτὰ μνημονεύειν, καὶ ταῦτα

ποιήσει συλλογιστικώτερον διὰ τὸ πρὸς ὠρισμέναις αὐτὰς βλέπειν κατ' ἀριθμὸν προτάσιν τε κοινὴν μᾶλλον ἢ λόγον εἰς μνήμην θετέον· ἀρχῆς γὰρ καὶ ὑποθέσεως εὐπορῆσαι μετρίως χαλεπόν.

^c Ibid. b. 34.

them as much as possible, though perhaps when spoken they may have been particular; for this is the best way to break down one into several. In conducting your own case as questioner you will avoid the higher generalities as much as you can.^a But you must at the same time take care to keep up some common or general premisses throughout the discourse; for every syllogistic process, even where the conclusion is particular, implies this, and no syllogism is valid without it.^b

Exercise in inductive discourse is most suitable for a young beginner; exercise in deductive or syllogistic discourse, for skilful veterans. From those who are accomplished in the former you can learn the art of multiplying particular comparisons; from those who are accomplished in the latter you derive universal premisses; such being the strong points of each. When you go through a dialectical exercise, try to bring away with you for future use either some complete syllogism, or some solution of an apparent refutation, or a major premiss, or a well-sustained exceptional example (*ἐνστασις*); note also whether either you or your respondent question correctly or otherwise, and on what reason such correctness or incorrectness turned.^c It is the express purpose of dialectical exercise to acquire power and facility in this procedure, especially as regards universal premisses and special exceptions. Indeed the main characteristic of the dialectician is to be apt at universal premisses, and apt at special

^a Topic. VIII. xiv. p. 164, a. 2-7: *δεῖ δὲ καὶ τὰς ἀπομνημονεύσεις καθόλου ποιεῖσθαι τῶν λόγων, κὰν ἢ διελεγμένος ἐπὶ μέρους—αὐτὸν δὲ ὅτι μάλιστα φεύγειν ἐπὶ τὸ καθόλου φέρειν τοὺς συλλογισμούς.*

This passage is to me obscure. I

have given the best meaning which it seems to offer.

^b Ibid. a. 8.

^c Ibid. a. 12-19. *ὅπως δ' ἐκ τοῦ γυμνάζεσθαι διαλεγόμενον πειρατέον ἀποφέρεισθαι ἢ συλλογισμὸν περὶ τινος, ἢ λύσιν ἢ πρότασιν ἢ ἐνστασιν, &c.*

exceptions. In the first of these two aptitudes he groups many particulars into one universal, without which he cannot make good his syllogism; in the second of the two he breaks up the one universal into many, distinguishing the separate constituents, and denying some while he affirms others.*

You must take care however not to carry on this exercise with every one, especially with a vulgar-minded man. With some persons the dispute cannot fail to take a discreditable turn. When the respondent tries to make a show of escaping by unworthy manœuvres, the questioner on his part must be unscrupulous also in syllogizing; but this is a disgraceful scene. To keep clear of such abusive discourse, you must be cautious not to discourse with commonplace, unprepared, respondents.^b

* Topic. VIII. xiv. p. 164, b. 2-6 :
ἔστι γὰρ ὡς ἀπλῶς εἰπεῖν διαλεκτικός
ὁ προτατικός καὶ ἐνστατικός· ἔστι δὲ
τὸ μὲν προτείνεισθαι ἐν ποιεῖν τὰ πλείω
(δεῖ γὰρ ἐν ὅλῳς ληφθῆναι πρὸς δ' ὁ
λόγος), τὸ δ' ἐνίστασθαι τὸ ἐν πολλὰ·

ἢ γὰρ διαιρεῖ ἢ ἀναιρεῖ, τὸ μὲν διδοῦς
τὸ δ' οὐ τῶν προτεωμένων.

^b Ibid. b. 8-15 : πρὸς γὰρ τὸν πάν-
τως πειρώμενον φαίνεσθαι διαφείγειν,
δίκαιον μὲν πάντως πειρᾶσθαι συλ-
λογίσασθαι, οὐκ ἐσχημον δέ.

CHAPTER X.

SOPHISTICI ELENCHI.

THE Sophist (according to Aristotle) is one whose professional occupation it is to make money by a delusive show of wisdom without the reality—by contriving to make others believe falsely that he possesses wisdom and knowledge. The abstract substantive noun *Sophistic*, with the verb *to practise as a Sophist* (σοφιστεύειν), expresses such profession and purpose.* This application of the term is derived from Plato, who has in various dialogues (Protagoras, Hippias, Euthydēmus, &c.) introduced Sokrates conversing with different professional Sophists, and who has, in a longer dialogue called Sophistes, attempted an elaborate definition of the intellectual peculiarities of the person so named. It is the actual argumentative procedure of the Sophist that Aristotle proposes to himself as the theme of this little treatise, appended to his general theory of the Syllogism; a treatise which, though forming properly the Ninth and concluding Book of the Topica, is commonly known as a separate appendix thereto, under the title of Sophistici Elenchi, or Sophistical Refutations.

* Soph. El. i. p. 165, a. 21, 28, 32 :
 ἔστι γὰρ ἡ σοφιστικὴ φαινόμενη σοφία
 οὐσα δ' οὐ, καὶ ὁ σοφιστὴς χρηματιστὴς
 ἀπὸ φαινομένης σοφίας ἀλλ' οὐκ οὐσης.
 —ἀνάγκη οὖν τοὺς βουλομένους
 σοφιστεῦειν τὸ τῶν εἰρημένων

λόγων γένος ζητεῖν—ὅτι μὲν οὖν ἔστι
 τι τοιοῦτον λόγων γένος, καὶ ὅτι ται-
 αύτης ἐφίενται δυνάμει οὗτος καλοῦ-
 μεν σοφιστὰς, δῆλον. Also xi. p.
 171, b. 27.

The Sophistical Elenchus or Refutation, being a delusive semblance of refutation which imposes on ordinary men and induces them to accept it as real, cannot be properly understood without the theory of Elenchus in general; nor can this last be understood without the entire theory of the Syllogism, since the Elenchus is only one variety of Syllogism.* The Elenchus is a syllogism with a conclusion contradictory to or refutative of some enunciated thesis or proposition. Accordingly we must first understand the conditions of a good and valid Syllogism, before we study those of a valid Elenchus; these last, again, must be understood, before we enter on the distinctive attributes of the Pseudo-elenchus—the sophistical, invalid, or sham, refutation. In other words, an enumeration and classification of Fallacies forms the closing section of a treatise on Logic—according to the philosophical arrangement originating with Aristotle, and copied by most logicians after him.

Aristotle begins by distinguishing reality and mere deceptive appearance; and by stating that this distinction is found to prevail not less in syllogisms than in other matters. Next he designates a notorious class of persons, called Sophists, who made it their profession to study and practise the deceptive appearance of syllogizing; and he then proceeds to distinguish four species of debate:—(1) Didactic; (2) Dialectic; (3) Peirastic; (4) Eristic or Sophistic.^b In this quadruple arrangement, however, he is not consistent with his own definitions, when he ranks the four as distinct and co-ordinate species. The marked

* Soph. El. x. p. 171, a. 1-5.

^b Ibid. ii. p. 165, a. 38: ἔστι δὴ τῶν ἐν τῷ διαλέγεσθαι λόγων τέτταρα

γένη, διδασκαλικοὶ καὶ διαλεκτικοὶ καὶ πειραστικοὶ καὶ ἐριστικοί.

and special antithesis is between Didactic and Dialectic. Both Peirastic and Eristic fall as varieties or sub-species under the species Dialectic; and there is under the species Didactic a variety called Pseudo-graphic or Pseudo-didactic, which stands to Didactic in the same relation in which Eristic stands to Dialectic.*

Didactic discourse is not applicable to all matters indiscriminately, but only to certain special sciences; each of which has its own separate, undemonstrable principia, from which its conclusions, so far as true and valid, must be deduced. It supposes a teacher acquainted with these *principia* and deductions, talking with some one who being ignorant of them wishes to learn. The teacher puts questions, to which the learner makes the best answers that he can; and, if the answers are wrong, corrects them and proceeds to draw, according to syllogistic canons, conclusions from premisses which he himself knows to be the truth. These premisses the learner must believe upon the teacher's authority. Properly speaking, indeed, the didactic process is not interrogative (in the same sense that Dialectic is): the teacher does not accept the learner's answer and reason from it, if he thinks it wrong.^b

Dialectic, on the contrary, is applicable to all mat-

* Soph. El. xi. p. 171, b. 34.

^b Ibid. xi. p. 172, a. 11: νῦν δ' οὐκ ἔστιν ὁ διαλεκτικὸς περὶ γένος τι ὠρισμένον, οὐδὲ δεικτικὸς οὐδενός, οὐδὲ τοιοῦτος οἷος ὁ καθόλου. οὔτε γὰρ ἔστιν ἅπαντα ἐν ἐνὶ τινὶ γένει, οὔτε εἰ εἷη, οἷόν τε ὑπὸ τὰς αὐτὰς ἀρχὰς εἶναι τὰ ὄντα. ὥστ' οὐδεμία τέχνη τῶν δεικνουσῶν τινὰ φύσιν ἐρωτητικὴ ἔστιν· οὐ γὰρ ἔξεστιν ὅποτεροῦν τῶν μορίων δοῦναι· συλλογισμὸς γὰρ οὐ γίνεται ἐξ ἀμφοῖν. ἡ δὲ διαλεκτικὴ ἐρωτητικὴ ἔστιν· εἰ δ' ἐδείκνυν, εἰ καὶ

μὴ πάντα, ἀλλὰ τὰ γε πρῶτα καὶ τὰς οἰκείας ἀρχάς, οὐκ ἂν ἤρώτα. μὴ δόντος γὰρ οὐκ ἂν ἔτι εἶχεν ἐξ ὧν ἔτι διαλέγεται πρὸς τὴν ἐνστάσιν.

When Aristotle, therefore, reckons λόγους διδασκαλικούς as one of the four species τῶν ἐν τῷ διαλέγεσθαι λόγων (Soph. El. ii. p. 165, a. 38), we must understand τὸ διαλέγεσθαι in a very wide and vague sense, going much beyond the derivative noun διαλεκτική.

ters universally and indiscriminately, including even the undemonstrable *principia* which the teacher assumes as the highest premisses of his didactic syllogisms. It supposes, in place of teacher and learner, an interrogator (or opponent) and a respondent. The respondent declares a problem or thesis, which he undertakes to defend; while the other puts questions to him respecting it, with the purpose of compelling him either to contradict the thesis, or to contradict himself on some other point. The interrogator is allowed only to ask questions, and to deduce legitimate conclusions from the premisses granted by the respondent in answer: he is not permitted to introduce any other premisses. The premisses upon which the debate turns are understood all to be probable—opinions accredited either among an ordinary multitude or among a few wise men, but to have no higher authority. Accordingly there is often a conflict of arguments *pro* and *con*, much diversified. The process is essentially controversial; and, if the questioner does not succeed in exposing a contradiction, the respondent is victorious, and remains in possession of the field.

Such is the capital antithesis, much dwelt upon by Aristotle, between Didactic and Dialectic. But that which he calls Peirastic, and that which he calls Eristic, are not species co-ordinate with and distinguished from Dialectic: they are peculiar aspects, subordinate varieties or modes, of Dialectic itself. Aristotle himself, indeed, admits Peirastic to be a mode or variety of Dialectic;* and the like is equally true respecting what he terms Eristic or Sophistic.

* Soph. El. xi. p. 171, b. 4-9: ἡ γὰρ πειραστική ἐστὶ διαλεκτική τις, γιστικῇ πειραστικός, διαλεκτικός.—viii. p. 169, b. 25: ἐστὶ δ' ἡ πειραστική μέρος τῆς διαλεκτικῆς.

These subordinate distinctions turn upon the manner, the limitations, and the purpose, for and under which the dialectical process is conducted. Dialectic is essentially gymnastic and peirastic: * it may be looked at either as gymnastic, in reference to the two debaters, or as peirastic, in reference to the arguments and doctrines brought forward; intellectual exercise and stimulation of the two speakers and the auditors around being effected by testing and confronting various probable doctrines. It is the common purpose (*κοινὸν ἔργον*)^b of the two champions, to improve and enlarge this exercise for the instruction of all, by following out a variety of logical consequences and logical repugnancies, bearing more or less directly on the thesis which the respondent chooses and undertakes to defend against a testing cross-examination. Certain rules and limitations are prescribed both for questioner and respondent; but, subject to these rules, each of them is bound to exert all his acuteness for the purpose of gaining victory; and, though one only can gain it, the debate may be well and creditably conducted on both sides. If the rules are not observed, if the assailing champion, bent upon victory at all cost, has recourse to dishonest interrogative tricks, or the defensive champion to perverse and obstructive negations, beyond the prescribed boundary, in that case the debate is called by Aristotle *eristic* or *contentious*, from the undue predominance of the controversial spirit and purpose; also *sophistic*, from the fact that there existed (as he asserts) a class or profession of persons called Sophists,

* Topica, I. ii. p. 101, a. 26, b. 2: *πρὸς γυμνασίαν—ἐξεταστικὴ γὰρ οὖσα, &c.* Compare also Topica, VIII. xi. p. 161, a. 25; xiv. p. 163, a. 29, p. 164, b. 1: *τὸ δὲ γυμνάζεσθαι δυνά-*

μειως χάριν, καὶ μάλιστα περὶ τὰς προτάσεις καὶ ἐνστάσεις· ἔστι γὰρ ὡς ἀπλῶς εἰπεῖν διαλεκτικὸς ὁ προτατικὸς καὶ ἐνστατικὸς.

^b Topica, VIII. xi. p. 161, a. 20, 37.

who regularly studied and practised these culpable manoeuvres, first with a view to reputation, and ultimately with a view to pecuniary profit, being pretenders to knowledge and wisdom without any reality to justify them.*

We thus see plainly that Peirastic and Eristic are not to be ranked as two distinct species of discourse, co-ordinate with Didactic and Dialectic: but that *peirastic* is in fact an epithet applicable generally to Dialectic, bringing to view one of its useful and appropriate functions; while *eristic* designates only a peculiar mode of conducting the process, the essential feature of which is that it is abusive or that it transgresses the rules and regulations. Still less ought Sophistic to be ranked as a distinct species; since it involves no intrinsic or intellectual *differentia*, but connotes only ethical and personal peculiarities ascribed to the Sophist, who is treated as an impostor practising dishonest tricks for the sake of pecuniary profit.^b

While, however, we recognize as main logical distinctions only the two heads Didactic and Dialectic, we note another way that Aristotle has of bringing in

* Soph. El. xi. p. 171, b. 25-35: *οἱ μὲν οὖν τῆς νίκης αὐτῆς χάριν τοιοῦτοι ἐριστικοὶ ἄνθρωποι καὶ φιλέριδες δοκοῦσιν εἶναι, οἱ δὲ δόξης χάριν τῆς εἰς χρηματισμὸν σοφιστικοί*—καὶ τῶν λόγων τῶν αὐτῶν μὲν εἰσιν οἱ φιλέριδες καὶ σοφισταί, ἀλλ' οὐ τῶν αὐτῶν ἔνεκεν. καὶ λόγος ὁ αὐτὸς μὲν ἴσται σοφιστικὸς καὶ ἐριστικὸς, ἀλλ' οὐ κατὰ ταυτὸν, ἀλλ' ἢ μὲν νίκης φαινομένης, ἐριστικὸς, ἢ δὲ σοφίας, σοφιστικὸς. &c.

^b Aristot. Rhetoric. I. i. p. 1355, b. 17: *ὁ γὰρ σοφιστικὸς οὐκ ἐν τῇ δυνάμει, ἀλλ' ἐν τῇ προαίρεσει*—σοφιστῆς μὲν κατὰ τὴν προαίρεσιν, διαλεκτικὸς δ' οὐ κατὰ τὴν προαίρεσιν

ἀλλὰ κατὰ τὴν δύναμιν. To the same purpose he speaks in Metaphys. Γ. ii. p. 1004, b. 25, distinguishing the Sophist by his *προαίρεσις* from the Dialectician, but recognizing that in point of *δύναμις* both are alike. Mr. Poste observes justly (in Transl. of the Soph. El., notes, p. 99):—“*δύναμις*, capacity, is in the intellect; *προαίρεσις*, purpose, in the will. The antithesis between these terms may throw light on what Aristotle conceived to be the relation between Sophistic and Dialectic. . . The power *plus* the will to deceive is called Sophistic; the power without the will, Dialectic (p. 100).”

what he calls Sophistic as a variety of the latter. Both in Didactic and Dialectic (he tells us) the speakers enunciate and prove their propositions by Syllogism: the didactic syllogism is derived from the principia belonging specially to one particular science, and proceeds from premisses that are true to conclusions that are true; while the dialectic syllogism starts from probable premisses (i.e., accredited by the ordinary public or by a few wise men), and marches in correct form to conclusions that are probable. Now, corresponding to each of these two, Aristotle recognizes farther a sort of degenerate counterpart. To the didactic syllogism there corresponds the *pseudographic* syllogism or the *paralogism*: which draws its premisses (as the didactic syllogism does) from the special matters of some given science,* yet which nevertheless has only the appearance of truth without the reality; either because it is incorrect in syllogistic form, or because the matter of the premisses (the major, the minor, or both) is untrue. To the dialectic syllogism, in like manner, there corresponds the *eristic* or *sophistic* syllogism: which is a good syllogism in appearance, but not in reality; either because it is incorrect in form, or because its premisses, in respect of their matter, appear to be probable without being really probable.^b

One would suppose that the relation between the pseudo-didactic and the didactic syllogism, was the same as that between the pseudo-dialectic and the dialectic; so that, if the pseudo-dialectic deserved to be called sophistic or eristic, the pseudo-didactic would deserve these appellations also; especially, since the formal con-

* Topica, I. i. p. 101, a. 5-15. οἱ ἐκ τῶν περὶ τινος ἐπιστήμης οἰκείων γινόμενοι παραλογισμοί, καθάπερ ἐπὶ τῆς γεωμετρίας καὶ τῶν ταύτης συγγενῶν συμβέβηκεν ἔχειν—ἐκ τῶν οἰκείων μὲν τῇ ἐπιστήμῃ λημμάτων, οὐκ ἀληθῶν δέ, τὸν συλλογισμόν ποιῆται.
^b Ibid. p. 100, a. 31-p. 101, a. 16; Soph. El. i. p. 164, a. 20-b. 21.

ditions of the syllogism are alike for both. This Aristotle does not admit, but draws instead a remarkable distinction. The Sophist (he says) is a dishonest man, making it his professional purpose to deceive; the pseudographic man of science is honest always, though sometimes mistaken. So long as the pseudographic syllogism keeps within the limits belonging to its own special science, it may be false, since the geometer may be deceived even in his own science geometry,^a but it cannot be sophistic or eristic; yet, whenever it transgresses those limits, even though it be true and though it solves the problem proposed, it deserves to be called by those two epithets. Thus, there were two distinct methods proposed for the quadrature of the circle—one by Hippokrates, on geometrical principles, the other by Bryson, upon principles extra-geometrical. Both demonstrations were false and unsuccessful; yet that of Hippokrates was not sophistic or eristic, because he kept within the sphere of geometry; while that of Bryson was so, because it travelled out of geometry. Nay more, this last would have been equally sophistic and eristic, and on the same ground, even if it had succeeded in solving the problem.^b If indeed the pseudographic syllogism be invalid in form, it must be considered as sophistic, even though within the proper scientific limits as to matter; but, if it be correct in form and within these same limits, then, however untrue its premisses may be, it is to be regarded as not sophistic or eristic.^c

^a Topica, V. iv. p. 132, a. 32.

^b Soph. El. xi. p. 171, b. 12-20: τὰ γὰρ ψευδογραφήματα οὐκ ἐριστικά (κατὰ γὰρ τὰ ὑπὸ τὴν τέχνην οἱ παραλογισμοί), οὐδέ γ' εἴ τί ἐστι ψευδογράφημα περὶ ἀληθείας, οἷον τὸ Ἰπποκράτους ἢ ὁ τετραγωνισμὸς ὁ

διὰ τῶν μηνίσκων. ἀλλ' ὥς Βρύσων ἐτετραγώνιζε τὸν κύκλον, εἰ καὶ τετραγωνίζεται ὁ κύκλος, ἀλλ' ὅτι οὐ κατὰ τὸ πρᾶγμα, διὰ τοῦτο σοφιστικός. Also p. 172, a. 1-8.

^c Ibid. xi. p. 171, b. 19-20. Compare Topica, VIII. xi. p. 161, a. 33:

Such is the test whereby Aristotle distinguishes the sophistication of the didactic process from the legitimate working of that process. Now this same test cannot be applied to Dialectic, which has no appropriate or exclusive specialty of matters, but deals with *Omne Scibile*, universally and indiscriminately. Aristotle therefore puts the analogy in another way. Both in Didactic and in Dialectic the Sophist is one who sins against the fundamental conditions of the task which he undertakes; these conditions being, that in Didactic he shall confine himself to the matters and premisses of a given science,—in Dialectic, to matters probable of whatever kind they may be. Transgression of these conditions constitutes unfair and dishonest manoeuvre, whether of teacher or questioner; like breach of the regulations on the part of competitors, bent on victory at all price, in the Olympic games. Aristotle ranks this dishonesty as a species, under the name of Sophistic or Eristic, admitting of being analysed and defined;* and his treatise on Sophistical Refutations is intended to describe and illustrate the *Loci* belonging to it, and contributing to its purpose.^b

Fallacious dialectical refutation being thus referred altogether to dishonesty of purpose (either contentious or profit-seeking) and being assumed as unknown in fair dialectical debate, we have to see by what characteristic Aristotle discriminates fallacious premisses

δεῖ δὲ τὸν καλῶς μεταβιβάζοντα
διαλεκτικῶς καὶ μὴ ἐριστικῶς μετα-
βιβάζειν, καθάπερ τὸν γεωμέτρην γεω-
μετρικῶς, ἂν τε ψεῦδος ἂν τ' ἀληθὲς
ἢ τὸ συμπεριυπόκεινται. Also *Topica*,
VIII. xii. p. 162, b. 10.

* *Soph. El.* xi. p. 171, b. 22:
ὥσπερ γὰρ ἡ ἐν ἀγῶνι ἀδικία εἰδὸς τι
ἔχει καὶ ἐστὶν ἀδικομαχία τις, οὕτως ἐν

ἀντιλογίᾳ ἀδικομαχία ἡ ἐριστική ἐστιν·
ἐκεῖ τε γὰρ οἱ πάντως νικᾶν προαιρού-
μενοι πάντων ἀπτονται, καὶ ἐνταῦθα οἱ
ἐριστικοί.

^b *Ibid.* ix. p. 170, a. 34: δῆλον
οὖν ὅτι οὐ πάντων τῶν ἐλεγχῶν ἀλλὰ
τῶν παρὰ τὴν διαλεκτικὴν ληπτέων τοὺς
τόπους.

from fair and admissible premisses. Dialectic (he tells us) has for its appropriate matter probable premisses—beliefs accredited either by the multitude or by a wise few. But (he goes on to say) not every thing which appears probable is really probable. Nothing that is really probable is a mere superficial fancy; wherever this last is the case, the *probabilia* are apparent only and not real; they have the character of falsehood stamped upon them, so as to be immediately manifest and obvious, even to persons of very narrow intelligence. It is such apparent *probabilia* as these, which make up the premisses of eristic or sophistic discourse, and upon which the sophistical or fallacious refutations turn.*

Aristotle thus draws a broad and marked line between Dialectic on the one hand, and Eristic or Sophistic on the other; and he treats the whole important doctrine of Logical Fallacies as coming under this latter department. The distinction that he draws between them is two-fold: first as to purpose, next as to subject-matter. On the part of the litigious or sophistical debater there is the illicit purpose of victory at all cost, or for profit; and probabilities merely apparent—such as any one may see not to be real probabilities—constitute the matter of his syllogisms.

Now, as to the distinction of purpose, we may put aside the idea of profit as having no essential connection with the question. It is quite possible to suppose the fair Dialectician, not less than the Sophist, as exhibiting

* *Topica*, I. i. p. 100, b. 23: *ἐριστικός δ' ἔστι συλλογισμὸς ὁ ἐκ φαινομένων ἐνδόξων μὴ ὄντων δέ, καὶ ὁ ἐξ ἐνδόξων ἢ φαινομένων ἐνδόξων φαινόμενος. οὐ γὰρ πᾶν τὸ φαινόμενον ἐνδοξόν, καὶ ἔστιν ἐνδοξόν. οὐδὲν γὰρ τῶν λεγομένων ἐνδόξων ἐπιπό-*

λαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὥς ἐπὶ τὸ πολὺ τοῖς καὶ μικρὰ συννορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψεύδους ἐστὶ φύσις. Compare Soph. El. ii. p. 165, b. 7.

his skill for pecuniary reward; while the eagerness for victory on both sides is absolutely indispensable even in well-conducted debate, in order that the appropriate stimulus and benefit of dialectical exercise may be realized. But, if the distinction of purpose and procedure, between the Dialectician and the Sophist, is thus undefined and unsatisfactory, still more unsatisfactory is the distinction of subject-matter. To discriminate between what is really probable (*i.e.*, accredited either by the multitude or by a wise few), and what is only probable in appearance and not in reality—is a task of extreme difficulty. The explanation given by Aristotle himself*—when he describes the apparently probable as that which has only superficial show, and which the most ordinary intelligence discerns at once to be false—includes only the more gross and obvious fallacies, but leaves out all the rest. Nothing can be more incorrect than the assumption, in regard to fallacies generally, that the appearance of probability is too faint to impose upon any ordinary man. If all fallacies could be supposed to come under this definition, the theory of Fallacies would undoubtedly be worthless (as Mr. Poste suggests that it is, in the Preface to his translation of the *Sophistici Elenchi*); and the most dishonest Sophist would at any rate be harmless. But, in fact, Aristotle himself departs from this definition even in the beginning of the *Sophistici Elenchi*; for he there treats the sophistic syllogism and refutation as having a semblance of validity plausible enough to impose upon many persons, and to be difficult of detection; like base metals having the exterior appearance of gold and silver, and like men got up for the purpose of looking finer

* *Topica*, I. i. p. 100, b. 24, seq.

and stronger than they really are.* Here we have the eristic or sophistic syllogism presented as fallacious, yet as very likely to be mistaken for truth, by unprepared auditors, unless warning and precaution be applied; not (as it was set forth in the definition above cited) as bearing the plain and obvious stamp of falsehood, recognizable even by the vulgar. At the time when Aristotle constructed that definition, he probably had present to his mind such caricatures of dialectical questions as Plato (in the dialogue *Euthydêmus*) puts into the mouth of the Sophists *Euthydêmus* and *Dionysodorus*. And, since Aristotle chose to connect fallacious reasoning with dishonest purposes, and to announce it as employed exclusively by dishonest debaters, he seems to have found satisfaction in describing it as something which no honest man of ordinary understanding could accept as true: the Sophist being thus presented not merely as a knave but as a fool.

I think it a mistake on the part of Aristotle to treat the fallacies incidental to the human intellect as if they were mere traps laid by Sophists and litigants; and as if they would never show themselves, assuming dialectical debate to be conducted entirely with a view to its legitimate purposes of testing a thesis and following out argumentative consequences. It is true that, if there are infirmities incident to the human intellect, a dishonest disputant will be likely to take advantage of them. So far it may be well to note his presence. But the dishonest disputant does not originate these infirmities: he finds them already existing, and mani-

* *Soph. El. i. p. 164, a. 23-b. 27.* | μέν, φαίνεται δὲ διὰ τὴν ἀπειρίαν οἱ
 τὸν αὐτὸν δὲ τρόπον καὶ συλλογισμὸς | γὰρ ἀπειροὶ ὥσπερ ἂν ἀπέχοντες
 καὶ ἑλεγχος ὁ μὲν ἔστιν, ὁ δ' οὐκ ἔστι | πύρρῳθεν θεωροῦσιν.

fested undesignedly not merely in dialectical debate, but even in ordinary discourse. It is the business of those who theorize on the intellectual processes to specify and discriminate the Fallacies as liabilities to intellectual error among mankind in general, honest or dishonest, with a view to precaution against their occurrence, or correction if they do occur; not to present them as inventions of a class of professional cheats,^a or as tares sown by the enemy in a field where the natural growth would be nothing but pure wheat.

In point of fact the actual classification of Fallacies given by Aristotle is far sounder than his announcement would lead us to expect. Though he entitles them Sophistical Refutations, describing them as intentionally cultivated and exclusively practised by professional Sophists for gain, or by unprincipled litigants for victory, yet he recognizes them as often very difficult of detection, and as an essential portion of the theory of Dialectic generally.^b The various general heads under which he distributes them are each characterized by intellectual or logical marks.

His first and most general observation is, that language is the usual medium and instrument through which fallacies are operated.^c Names and propositions are of necessity limited in number; but things named or nameable are innumerable; hence it happens inevitably that the same name or the same proposition must have several different meanings. Since we cannot talk of things except by means of their names, the equivocation inseparable from these names is a constant source of false conclusions.^d

^a Soph. El. i. p. 165, a. 19, seq.

^b Ibid. xi. p. 172, b. 7.

^c Ibid. i. p. 165, a. 5.

^d Ibid. a. 10: τὰ μὲν γὰρ ὀνόματα

πεπέρανται καὶ τὸ τῶν λόγων πλῆθος,
τὰ δὲ πράγματα τὸν ἀριθμὸν ἀπειρά
ἐστίν. ἀναγκαῖον οὖν πλείω τὸν αὐτὸν
λόγον καὶ τοῦτομα τὸ ἐν σημαίνειν.

In dialectical procedure, the Sophist and the litigious debater aim at the accomplishment of five distinguishable ends:—(1) To refute, or obtain the false appearance of refuting, the thesis; (2) To catch, or appear to catch, the opponent in affirming something false or contradictory; (3) Or in affirming something paradoxical; (4) Or in uttering incorrect and ungrammatical speech; (5) Or in tautological repetition. The first of these five ends is what the Sophist most desires; where that cannot be had, then, as secondary purposes, the succeeding four, in the order in which they are enumerated.*

The syllogism whereby the Sophist appears to refute without really refuting, is either faulty in form, or untrue in matter, or irrelevant to the purpose. The Fallacies that he employs to bring about this deceitful appearance of refutation are various, and may be distributed first under two great divisions:—

I. *Fallaciæ Dictionis.*

II. *Fallaciæ Extra Dictionem.*

I. The first division—*Fallaciæ Dictionis*—includes all those cases wherein, under the same terms or propositions, more than one meaning is expressed. Six heads may be distinguished:—

1. Homonymy (Equivocation): where the double meaning resides in one single term—noun or verb.

2. Amphiboly: where the double meaning resides, not in a single word but, in a combination of words—proposition, phrase, or sentence.

3. Conjunction (hardly distinguishable from that immediately preceding—Amphiboly).

4. Disjunction: where what is affirmed conjunc-

* Soph. El. iii. p. 165, b. 12-22.

tively is not true disjunctively, or the reverse. (*E.g.*, Five are two and three; but you cannot say, Five are even and odd. The greater is equal and something besides; but you cannot say, The greater is equal.)

5. *Accentuation*: where the same word differently accentuated has a different meaning.

6. *Figura Dictionis*: where two words, from being analogous in form, structure, or conjugation, are erroneously supposed to be analogous in meaning also.*

Such are the six heads of *Fallaciæ Dictionis*—Fallacies or Paralogisms arising from words as such, or something directly appertaining to them.

II. Under the second division—Fallacies or Paralogisms *Extra Dictionem*—there are seven heads:

1. *Fallacia Accidentis*.

2. *Fallacia a dicto Secundum Quid ad dictum Simpliciter*.

3. *Ignoratio Elenchi*.

4. *Fallacia Consequentis*.

5. *Petitio Principii*.

6. *Non Causa pro Causâ*.

7. *Fallacia Plurimum Interrogationum*.^b

1. The first of these varieties, called *Fallacia Accidentis*, arises when a syllogism is made to conclude that, because a given predicate may be truly affirmed of a given subject, the same predicate may also be truly affirmed respecting all the accidents of that subject: as when Koriskus is denied to be a man, because he is not Sokrates, who is a man; or is denied to be Koriskus, because he is a man, while a man is not Koriskus.

In the title given to this general head of Fallacy,^c we

* Soph. El. iv. p. 165, b. 23-p. 166, b. 19.

^b Ibid. v. p. 166, b. 20-27.

^c Ibid. b. 29: οἱ παρὰ τὸ συμβεβηκὸς παραλογισμοί. Every man is an animal; but, because a predicate is

must understand Accident, not in its special logical sense as opposed to Essence, but in a far larger sense, including both Genus when predicated separately from Differentia, and Differentia when predicated separately from Genus; including, in fact, every thing which is distinguishable from the subject in any way, and at the same time predicable of it—every thing except the Definition, which conjoins Genus and Differentia together, and is thus identical and convertible with the *definitum*.

2. The second general variety arises when a proposition is affirmed with qualification or limitation in the premisses, but is affirmed without qualification, simply and absolutely, in the conclusion. The Ethiopian is white in his teeth and black in his skin; therefore, he is both white and not white—both white and black. In this example the fallacy is obvious, and can hardly escape any one; but there are many other cases in which the distinction is not so conspicuous, and in which the respondent will hesitate whether he ought to grant or refuse a question simply and absolutely.^a One example given by Aristotle deserves notice on its own account: *Non-Ens est opinabile*, therefore *Non-Ens est*; or, again, *Ens non est homo*, therefore, *Ens non est*. This is one among Aristotle's ways of bringing to view what modern logicians describe as the double function of the substantive verb—to serve as copula in predication, and to predicate existence.^b

true of the subject man, you cannot infer that the same predicate is true of the subject animal. This title comprehends within its range another, which is presently announced as distinct and separate—*Fallacia Consequentis*.

^a Soph. El. v. p. 166, b. 37, seq. ὅταν τὸ ἐν μέρει λεγόμενον ὡς ἀπλῶς

εἰρημένον ληφθῇ—τὸ δὲ τοιοῦτον ἐπ' ἐνίων μὲν παντὶ θεωρῆσαι ῥᾶδιον—ἐπ' ἐνίων δὲ λανθάνει πολλάκις.

^b The same double or multiple meaning of *Est* is discriminated by Aristotle in the *Metaphysica*, but in a different way—τὸ ὅν ὡς ἀληθές, καὶ τὸ μὴ ὅν ὡς ψεῦδος—Δ. vii. p. 1017,

He regards the confusion between these two functions as an example of the Fallacy now before us—of passing *a dicto Secundum Quid ad dictum Simpliciter*.*

3. The third of these heads of Fallacy—*Ignoratio Elenchi*—is, when the speaker, professing to contradict the thesis, advances another proposition which contradicts it in appearance only but not in reality, because he does not know what are the true and sufficient con-

a. 31; E. iv. p. 1027, b. 18-36. Bonitz (ad Metaphys. Z. iv. p. 310) says:—"Quid quod etiam illud esse huc refert, quo non existentiam significamus, sed predicati cum subjecto conjunctionem." Aristotle is even more precise than modern logicians in analysing the different meanings of τὸ εἶναι: he distinguishes four of them.

* Soph. El. v. p. 167, a. 1: οἷον εἰ τὸ μὴ εἶναι δοξαστόν, ὅτι τὸ μὴ εἶναι οὐ γὰρ ταῦτόν εἶναι τί τι καὶ εἶναι ἀπλῶς.

Compare Metaphys. Z. iv. p. 1030, a. 25, and De Interpretatione, p. 21, a. 25-34: ὥσπερ Ὁμηρός ἐστὶ τι, οἷον ποιητής· ἄρ' οὖν καὶ ἔστιν, ἢ οὐ; κατὰ συμβεβηκὸς γὰρ κατηγορεῖται τοῦ Ὁμήρου τὸ ἔστιν· ὅτι γὰρ ποιητής ἐστιν, ἀλλ' οὐ καθ' αὐτό, κατηγορεῖται κατὰ τοῦ Ὁμήρου τὸ ἔστιν.

It is clear from the above passages that Aristotle was thoroughly aware of the logical fact which Hobbes, James Mill, and Mr. John Stuart Mill, have more fully brought out and illustrated, as the confusion between the two distinct functions of the substantive verb. Many excellent remarks on the subject will be found in the 'System of Logic,' by Mr. J. S. Mill (Bk. I. ch. iv. s. 1); also in the 'Analysis of the Human Mind,' by James Mill, especially in the recent edition of that work, containing the explanatory notes by Mr. J. S. Mill and Dr. Findlater (Vol. I. ch. iv.

p. 174, seq.). Mr. J. S. Mill, however, speaks too unreservedly of this confusion as having escaped the notice of Aristotle, and as having been brought to light only by or since Hobbes. He says (in a note on the 'Analysis,' p. 183):—"As in the case of many other luminous thoughts, an approach is found to have been made to it by previous thinkers. Hobbes, though he did not reach it, came very close to it; and it was still more distinctly anticipated by Laromiguière, though without any sufficient perception of its value . . . in the following words:—"Quand on dit, l'être est, &c., le mot *est*, ou le verbe, n'exprime pas la même chose que le mot *être*, sujet de la définition. Si j'énonce la proposition suivante: Dieu est existant, je ne voudrais pas dire assurément, Dieu existe existant: cela ne ferait pas un sens: de même, si je dis que Virgile est poète, je ne veux pas donner à entendre que Virgile existe. Le verbe *est* dans la proposition n'exprime dont pas l'existence réelle; il n'exprime qu'un rapport spécial entre le sujet et l'attribut, &c." The passages above cited from Aristotle show that he had not only enunciated the same truth as Laromiguière, but even illustrated it by the same example (Homer instead of Virgil). I shall in another place state more fully the views of Aristotle respecting *Existence*.

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ditions of a valid Elenchus. In order to be valid, it must be real, not merely verbal; it must be proved by good syllogistic premisses, without any *Petitio Principii*; and it must deny the same matter, in the same relations, and at the same time, as that which the thesis affirmed. Thus, it is no contradiction to affirm and deny doubleness of the same body; both affirmation and denial may be true, if you take the comparison against different numbers or different bodies, or at different times. Sometimes persons neglect some of these conditions, and fancy that they have contradicted the thesis, when they have not: this is *Ignoratio Elenchi*.^a (If the thesis be an affirmative universal, it is sufficient contradiction if you prove a negative particular against it.)

4. The fourth head includes what are called *Fallaciæ Consequentis*: when a man inverts the relation between predicate and subject in a categorical proposition affirmative and universal, thinking that it may be simply converted or that the subject may be truly affirmed of the predicate; or when, in an hypothetical proposition, he inverts the relation between antecedent and consequent, arguing that, because the consequent is true, the antecedent must for that reason be true also. Honey is of yellow colour; you see a yellow sub-

^a Soph. El. v. p. 167, a. 21-35: οἱ δὲ παρὰ τὸ μὴ διωρίσθαι τί ἐστὶ συλλογισμὸς ἢ τί ἔλεγχος, ἀλλὰ παρὰ τὴν ἑλλειψιν γίνονται τοῦ λόγου.

We may remark, by the way, that it is not very consistent in Aristotle to recognize one general head of Sophistical Refutation called *Ignoratio Elenchi*, after the definition that he has given of the Sophist at the beginning of this treatise. He had told us that the Sophist was a dishonest man, who

made it his profession to study and practise these tricks, for the purpose of making himself pass for a clever man, and of getting money. According to this definition, there is no *Ignoratio Elenchi* in the Sophist, though there may be in the person who supposes himself refuted. The Sophist is assumed to know what he is about, and to be aware that his argument is a fallacious one.

stance, and you infer for that reason that it must be honey. Thieves generally walk out by night; you find a man walking out by night, and you infer that he must be a thief. These are inferences from Signs, opinions founded on facts of sense, such as are usually employed in Rhetoric; often or usually true, but not necessarily or universally true, and therefore fallacious when used as premisses in a syllogism.^a

5. The fifth head is that of *Petitio Principii*: a man sometimes assumes for his premiss what is identical with the conclusion to be proved, without being aware of the identity.^b

6. The sixth head of Fallacy—*Non Causa pro Causâ*—is, when we mistake for a cause that which is not really a cause; or, to drop the misleading word *cause*, and to adopt the clearer terms in which this same fallacy is announced in the *Analytica Priora*^c—*Non per Hoc*—*Non propter Hoc*, it arises when we put forward, as an essential premiss of a given conclusion, something

^a Soph. El. v. p. 167, b. 1-18. This head (*Fallacia Consequentis*) is not essentially distinguishable from the first (*Fallacia Accidentis*), being nothing more than a peculiar species or variety thereof, as Aristotle himself admits a little farther on—vi. p. 168, a. 26; vii. p. 169, b. 7; viii. p. 170, a. 3. Compare also xxviii. p. 181, a. 25.

^b Ibid. v. p. 167, a. 38: διὰ τὸ μὴ δύνασθαι συνορᾶν τὸ ταῦτόν καὶ τὸ ἕτερον.

^c Soph. El. v. p. 167, b. 21; vii. p. 169, b. 13. Compare *Analyt. Prior. II.* xvii. p. 65.

In commenting on the above chapter of the *Analytica Priora*, I have already remarked (Vol. I. p. 258,

note) how much better is the designation there given of the present fallacy—*Non per Hoc* (οὐ παρὰ τὴν θείω τὸ ψεῦδος)—than the designation here given of the same fallacy—*Non Causa pro Causâ*. Aristotle is speaking of a syllogistic process, consisting of premisses and a conclusion; the premisses being the *reasons* or grounds of the conclusion, not the *cause* thereof, as that term is commonly understood. The term *cause* is one used in so many different senses that we cannot be too careful in reasoning upon it. See Whately's remarks on this subject, Bk. iii. sect. 14, of his *Logic*: also his Appendix I. to that work, under article *Reason*.

that is not really an essential premiss thereof. When you intend to refute a given thesis by showing that, if admitted, it leads to impossible or absurd conclusions, you must enunciate that thesis itself among the premisses that lead to such absurdities.^a But, though enunciated in this place, it may often happen that the thesis may be an unnecessary adjunct—not among the premisses really pertinent and essential; and that the impossible conclusion may be sufficiently proved, even though the thesis were omitted. Still, since the thesis is declared along with the rest, it will appear falsely to be a part of the real proof. It will often appear so even to yourself the questioner; you not detecting the fallacy.^b Under such circumstances the respondent meets you by *Non propter Hoc*. He admits your conclusion to be impossible, and at the same time to be duly proved, but he shows you that it is proved by evidence independent of his thesis, and not by reason or means of his thesis. Accordingly you have advanced a syllogism good in itself, but not good for the purpose which you aimed at;^c viz., to refute the thesis by establishing that it led to impossible consequences. You will fail, even if the impossible consequence which you advance is a proposition conjoined with the thesis through a continuous series of intermediate propositions, each of them having one common term with the next. Much more will you fail, if your impossible consequence is quite foreign and unconnected with the thesis; as we sometimes find in Dialectic.

^a Soph. El. v. p. 167, b. 24: εἰν οὖν ἐγκαταριθμήθη ἐν τοῖς ἀναγκαίοις ἐρωτήμασι πρὸς τὸ συμβαῖνον ἀδύνατον, δοξεῖ παρὰ τοῦτο γίνεσθαι πολ-
λάκις ὁ ἔλεγχος.

^b Ibid. b. 35: καὶ λανθάνει πολ-

λάκις οὐχ ἦττον αὐτοὺς τοὺς ἐρωτῶντας τὸ τοιοῦτον.

^c Ibid. b. 34: ἀσυλλόγιστοι μὲν οὖν ἀπλῶς οὐκ εἰσὶν οἱ τοιοῦτοι λόγοι, πρὸς δὲ τὸ προκείμενον ἀσυλλόγιστοι.

7. The seventh and last of these heads of Fallacy is, when the questioner puts two distinct questions in the same form of words, as if they were one—*Fallacia Plurimum Interrogationum ut Unius*. In well-conducted Dialectic the respondent was assumed to reply either Yes or No to the question put; or, if it was put in the form of an alternative, he accepted distinctly one term of the alternative. Under such conditions he could not reply to one of these double-termed questions without speaking falsely or committing himself. Are the earth and the sea liquid? Is the heaven or the earth sea?—The questions are improperly put, and neither admits of any one correct answer. You ought to confine yourself to one question at a time, with one subject and one predicate, making what is properly understood by one single proposition. The two questions here stated as examples ought properly to be put as four.*

Aristotle has thus distinguished and classified Fallacies under thirteen distinct heads in all—six *In Dictione*, and seven *Extra Dictionem*; among which last one is *Ignoratio Elenchi*. He now proceeds to show that, in another way of looking at the matter, all the Fallacies ranged under the thirteen heads, may be

* Soph. El. v. p. 167, b. 38-p. 168, a. 16; vi. p. 169, a. 6-12. ἡ γὰρ πρότασις ἐστὶν ἐν καθ' ἑνός.—εἰ οὖν μία πρότασις ἢ ἐν καθ' ἑνὸς ἀξιούσα, καὶ ἀπλῶς ἔσται πρότασις ἢ τοιαύτη ἐρώτησις.

The examples given of this fallacy by Aristotle are so palpable—the expounder of every fallacy *must* make it clear by giving examples that every one sees through at once—that we are tempted to imagine that no one can be imposed on by it. But Aristotle himself remarks, very justly, that there occur many cases in which we

do not readily see whether one question only, or more than one, is involved; and in which one answer is made, though two questions are concerned. To set out distinctly all the separate debateable points is one of the most essential precautions for ensuring correct decision. The importance of such discriminating separation is one of the four rules prescribed by Descartes in his Discours de la Méthode. The present case comes under Mr. Mill's Fallacies of Confusion.

shown to be reducible to this single one—*Ignoratio Elenchi*. Every Fallacy, whatever it be, transgresses or fails to satisfy, in some way or other, the canons or conditions which go to constitute a valid Elenchus,^a or a valid Syllogism. For a true Elenchus is only one mode of a true Syllogism; namely, that of which the conclusion is contradictory to some given thesis or proposition.^b With this particular added, the definition of a valid Syllogism will also be the definition of a good Elenchus. And thus *Ignoratio Elenchi*—misconception or neglect of the conditions of a good Elenchus—understood in its largest meaning, is rather a characteristic common to all varieties of Fallacy, than one variety among others.^c

In regard to two among the thirteen heads—*Fallacia Accidentis* and *Fallacia Consequentis* (which however ought properly to rank as only one head, since the second is merely a particular variety of the first)—Aristotle's observations are remarkable. After having pointed out that a syllogism embodying this fallacy will not be valid or conclusive (thus showing that it involves *Ignoratio Elenchi*), he affirms that even scientific men were often not aware of it, and conceived themselves to be really refuted by an unscientific opponent urging against them such an inconclusive syllogism. To take an example:—Every triangle has its three angles equal to two right angles; every triangle is a figure; therefore, every figure has its three angles equal to two right angles.^d Here we have an invalid syllogism;

^a Soph. El. vi. p. 168, a. 19: ἔστι γὰρ ἅπαντας ἀναλῦσαι τοὺς λεχθέντας τρόπους εἰς τὸν τοῦ ἐλέγχου διορισμόν.

^b Ibid. a. 35.

^c Ibid. p. 169, b. 15.

^d Ibid. p. 168, a. 40: οὐδ' εἰ τὸ

τρίγωνον δυοῖν ὀρθαῖν ἴσας ἔχει, συμβέβηκε δ' αὐτῷ σχήματι εἶναι ἢ πρώτῳ ἢ ἀρχῇ, ὅτι σχῆμα ἢ ἀρχὴ ἢ πρῶτον τοῦτο.

Here we have Figure reckoned as an *accident* of Triangle. This is a

for it is in the Third figure, and sins against the conditions of that figure, by exhibiting an universal affirmative conclusion: it is a syllogism properly concluding in *Darapti*, but with conclusion improperly generalized. Yet Aristotle intimates that a scientific geometer of his day, in argument with an unscientific opponent, would admit the conclusion to be well proved, not knowing how to point out where the fallacy lay: he would, if asked, grant the premisses necessary for constructing such a syllogism; and, even if not asked, would suppose that he had already granted them, or that they ought to be granted.*

The passage affords us a curious insight into the intellectual grasp of the scientific men contemporary

specimen of Aristotle's occasional laxity in employing the word *συμβεβηκός*. He commonly uses it as contrasted with *essential*, of which last term Mr. Poste says very justly (notes, p. 129):—"To complete the statement of Aristotle's view, it should be added, that essential propositions are those whose predicate cannot be defined without naming the subject, or whose subject cannot be defined without naming the predicate." Now figure is the genus to which triangle belongs, and triangle cannot be defined without naming its genus figure. But to include Genus as a predicable under the head of *συμβεβηκός* or Accident, is in marked opposition to Aristotle's own doctrine elsewhere: see *Topica*, I. v. p. 102, b. 4; iv. p. 101, b. 17; *Analyt. Post.* I. ii. p. 71, b. 9; *Metaphys. E.* p. 1026, b. 32. It is a misfortune that Aristotle gave to this general head of Fallacy the misleading title of *Fallacia Accidentis*—παρὰ τὸ συμβεβηκός.

When he gave this title, he probably had present to his mind only such examples as he indicates in *Soph. El.* v. p. 166, b. 32. Throughout the *Topica* and elsewhere, Genus is distinguished pointedly from *συμβεβηκός*, though examples occur occasionally in which the distinction is neglected. The two Fallacies called *Accidentis* and *Consequentis*, would both be more properly ranked under one common logical title—*Supposed convertibility or interchangeableness between Subject and Predicate*—εἰ τὸδε ἀπὸ τοῦδε μὴ χωρίζεται, μηδ' ἀπὸ θατέρου χωρίζεσθαι θάτερον (*vii.* p. 169, b. 8).

* *Soph. El.* vi. p. 168, b. 6: ἀλλὰ παρὰ τοῦτο καὶ οἱ τεχνῖται καὶ ὅλως οἱ ἐπιστήμονες ὑπὸ τῶν ἀνεπιστημόνων ἐλέγχονται· κατὰ συμβεβηκός γὰρ ποιοῦνται τοὺς συλλογισμοὺς πρὸς τοὺς εἰδότας· οἱ δ' οὐ δυνάμενοι διακρίειν ἢ ἐρωτώμενοι διδόντες ἢ οὐ δόντες οἴονται δεδωκέναι.

with Aristotle. Most of them were prepared to admit fallacious inferences (such as the above) which assumed the interchangeability of subject and predicate. They had paid little or no attention to the logical relations between one proposition and another, and between the two different terms of the same proposition. The differences of essential from accidental predication, and of each among the five Predicables from the others, must have been practically familiar to them, as to others, from the habit of correct speaking in detail; but they had not been called upon to consider correct speaking and reasoning in theory, nor to understand upon what conditions it depended whether the march of their argumentative discourse landed them in true or false results. And, if even the scientific men were thus unaware of logical fallacies, we may be sure that this must have been still more the case with unscientific men, of ordinary intelligence and education. Aristotle tells us here, in more than one passage, how widespread such illogical tendencies were: to fancy that two subjects which had one predicate the same must be the same with each other in all respects;^a to understand each predicate applied to a subject as being itself an independent subject, implying a new *Hoc Aliquid* or *Unum*;^b to treat the universal, not as a common epithet but, as a substantive and singular apart;^c to use equivocal words or phrases, even the most wide and vague, without any attempt to dis-

^a Soph. El. vi. p. 168, b. 31: τὰ γὰρ ἐνὶ ταῦτῳ ταῦτά, καὶ ἀλλήλοις ἀξιούμεν εἶναι ταῦτά.—vii. p. 169, b. 7: ὅτι καὶ ἐπὶ πολλῶν φαίνεται καὶ ἀξιούται οὕτως, εἰ τόδε ἀπὸ τοῦδε μὴ χωρίζεται, μηδ' ἀπὸ θατέρου χωρίζεσθαι θάτερον.

^b Ibid. vii. p. 169, a. 33: ὅτι πᾶν

τὸ κατηγορούμενόν τινος ὑπολαμβάνομεν τόδε τι καὶ ὡς ἐν ὑπακούομεν· τῷ γὰρ ἐνὶ καὶ τῇ οὐσίᾳ μάλιστα δοκεῖ παρέπεσθαι τὸ τόδε τι καὶ τὸ ὄν.

^c Ibid. xxii. p. 178, b. 37-p. 179, a. 10.

criminate their various meanings.* Such insensibility to the conditions of accurate reasoning prevailed alike among ordinary men and among the men of special science. A geometer would be imposed upon by the inconclusive syllogism stated in the last paragraph which, as being founded on the *Fallacia Accidentis* (or interchangeability of subject and predicate), Aristotle numbers among Sophistical Refutations. Such a refutation, however, even when successful, would not at all prove that the geometer was deficient in knowledge of his own science;† for it would puzzle the really scientific man as well as the pretender.

We must always recollect that Aristotle was the first author who studied the logical relations between Terms and Propositions, with a view to theory and to general rules founded thereupon. The distinctions which he brought to view were in his time novelties; even the simplest rules, such as those relating to the Conversion of propositions, or to Contraries and Contradictories, had never been stated in general terms before. Up to a certain point, indeed, acquired habit, even without these generalities, would doubtless lead to correct speech and reasoning; yet liable to be perverted in many cases by erroneous tendencies, requiring to be indicated and guarded against by a logician. When we are told that even a professed geometer was imposed upon by these fallacies, we learn at once how deep-seated were such illogical deficiencies, how useful was Aristotle's theoretical study in marking them out, and how insufficient was his classification when he described the Fallacies as obvious frauds, broached only

* Soph. El. vii. p. 169, a. 22.

† Ibid. viii. p. 169, b. 27: οἱ δὲ σοφιστικοὶ ἔλεγχοι, ἂν καὶ συλλογίζωνται τὴν ἀντίφασιν, οὐ ποιοῦσι

δῆλον εἰ ἀγνοεῖ· καὶ γὰρ τὸν εἰδὸς ἐμποδίζουν τοῖς τοῖς λόγοις. Comp. pare vi. p. 168, b. 6.

y dishonest professional Sophists. As he himself states, the cause of deceit turns upon a quite trifling difference; having its root in the imperfection of language and in our frequent habit of using words without much attention to logical distinctions.*

Under one or other, then, of the thirteen general heads above enumerated, all Paralogisms must be included—merely apparent syllogisms, or refutations, which are not real and valid;^b and all of them designated by Aristotle as sophistic or eristic. Besides these, moreover, he includes, as we saw, under the same designation, syllogisms or refutations valid in form, and true as to conclusion, yet founded on premisses not suited to the matter in debate; *i.e.*, not suited to Dialectic. Now, here it is that difficulty arises. Dialectic and Rhetoric are carefully distinguished by Aristotle from all the special sciences (such as Geometry, Astronomy, Medicine, &c.); and are construed as embracing every variety of authoritative *dicta*, current beliefs, and matters of opinion, together with all the most general maxims and hypotheses of Ontology and Metaphysics, of Physics and Ethics, and the common Axioms assumed in all the sciences, as discriminated from what is special and peculiar to each. Construed in this way, we might imagine that the subject-matter of Dialectic was all-comprehensive, and that every thing without exception belonged to it, except the specialties of Geometry and of the other sciences; and such is the usual language of Aristotle. Yet in the treatise before us we find him exerting himself to establish another classification, and to part off Dia-

* Soph. El. vii. p. 169, b. 14: ἐν ἅπασιν γὰρ ἡ ἀπάτη διὰ τὸ παρὰ μικρὸν οὐ γὰρ διακριβοῦμεν οὔτε τῆς ἐροτάσεως οὔτε τοῦ συλλογισμοῦ τὸν ὅρον διὰ τὴν εἰρημένην αἰτίαν. Compare v. p. 167, a. 5-14; i. p. 165, a. 6-19.
^b Ibid. viii. p. 170, a. 10.

lectic from a certain other science or art which he acknowledges under the title of Sophistic or Eristic.* Elsewhere he describes Sophistic as occupied in the study of accidents or occasional conjunctions; and this characteristic feature parts it off from Demonstration and Science. But there is greater difficulty when he tries to part it off from Dialectic. Where are we to find a clear line of distinction between the matter of dialectic debate (gymnastic or testing) on the one hand, and the matter of debate sophistic or litigious, on the other? At the beginning of the *Topica* Aristotle assigned, as the distinction, that the Dialectician argues upon premisses *really* probable, while the litigious Sophist takes up premisses which are probable *in appearance only*, and not in reality; such apparent *probabilia* (he goes on to say) having only the most superficial semblance of truth, and being seen immediately to be manifest falsehoods by persons of very ordinary intelligence.^b But I have already pointed out that this description of apparent *probabilia*, if considered as apply-

* *Metaphys.* E. viii. p. 1064, b. 26: τοῦτο δὲ (τὸ συμβεβηκός) οὐδεμία ζητεῖ τῶν ὁμολογουμένως οὐσῶν ἐπιστημῶν, πλὴν ἡ σοφιστική· περὶ τὸ συμβεβηκός γὰρ αὕτη μόνη πραγματεύεται. Compare *Analyt. Poster.* I. ii. p. 71, b. 10.

^b *Topica*, I. i. p. 100, b. 26: οὐ γὰρ πᾶν τὸ φαινόμενον ἔνδοξον καὶ ἔστιν ἔνδοξον. οὐθέν γὰρ τῶν λεγομένων ἔνδοξων ἐπιπόλαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὡς ἐπὶ τὸ πολὺ τοῖς καὶ μικρὰ συνορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψευδοῦς ἐστὶ φύσις. It is by reference to this distinction between *ἐνδοξα* which are genuine and *ἐνδοξα* which are only such in appearance

that the Scholiast (p. 306, b. 40) explains the meaning of Aristotle in the eleventh chapter of *Sophistici Elenchi*: ὁ μὲν οὖν κατὰ τὸ πρᾶγμα θεωρῶν τὰ κοινὰ διαλεκτικός, ὁ δὲ τοῦτο φαινομένως ποιῶν σοφιστικός (p. 171, b. 6-20). I confess that I attach no distinct meaning to the words κατὰ τὸ πρᾶγμα θεωρεῖν τὰ κοινὰ, which characterizes the Dialectician as contrasted with the Sophist; nor can I learn much from the notes either of Waitz or of Mr. Poste (p. 129, seq.) on the passage. Take for example the last half of the *Parmenides* of Plato, or Book B. of the *Metaphysica* of Aristotle. Are we to say that in these two compositions Plato and Aristotle speculate on τὰ κοινὰ κατὰ τὸ πρᾶγμα, or that they do so only in appearance?

ing to fallacious reasoning generally, is both untenable in itself, and contradicted by Aristotle himself elsewhere. The truth is, that there is no clear distinction between the matter of Dialectic and the matter of Sophistic. And so, indeed, Aristotle must be understood to admit, when he falls back upon an alleged distinction of aim and purpose between the practitioners of one and the other. The litigious man (he tells us) is bent upon nothing but victory in debate, *per fas et nefas*: the Sophist aims at passing himself off falsely for a wise or clever man, and making money thereby.*

Now, in regard to the distinction of aim or disposition drawn by Aristotle between the dialectical disputant and the litigious or sophistic disputant, we see at once, as was before suggested, that it lies apart from the critical estimate of art, science, or philosophy; and that it belongs, so far as it is well founded, to the estimate of individuals ethically and politically, as worthy men or patriotic citizens. Whether Euripides or Sophokles composed finer tragedies (as we find argued in the *Ranæ* of Aristophanes), must be decided by examining the tragedies themselves, not by enquiring whether one of them was vain and greedy of money, the other free from these blemishes. A theorist who is laying down general principles of Rhetoric, and illustrating them by the study of Æschines and Demosthenes, will appreciate the oration against Ktesiphon and the oration *De Coronâ* in their character of compositions intended for a particular purpose. For Rhetoric it is of no moment whether Æschines was venal or disinterested—a malignant rival or an honest patriot; this is an enquiry important indeed, but belonging to the

* Soph. El. xi. p. 171, b. 25-35; i. p. 165, a. 21-31.

historian and not to the rhetorical theorist. Whether Aristotle was or was not guided, in his animadversions on Plato, by an unworthy and captious jealousy of his master, is an interesting question in reference to his character; but our appreciation of his philosophy must proceed upon an examination, not of his motives but, of his doctrines and reasonings as we find them. A good argument is not deprived of its force when enunciated by a knave, nor is a bad argument rendered good because it proceeds from a virtuous man. Indeed, so far as the character of the speaker counts at all, in falsifying the fair logical estimate of an argument, it operates in a direction opposite to that here indicated by Aristotle. The same argument in the mouth of one who is esteemed and admired counts for more than its worth; in the mouth of a person of low character it counts for less than it is worth.* To distribute arguments into two classes—those employed by persons of dishonourable character and those employed by honourable men—is a departure from the scientific character of Logic.

As to the other part of the case (if it is still necessary to recur to it), touching the peculiarity of the matter of sophistical arguments, the inconsistency of Aristotle is most apparent. In enumerating the Sophistical Refutations he tells us that these fallacies are indeed sometimes palpable and easily detected, but that they are often very difficult to detect and very misleading; that an unprepared hearer will generally be imposed upon by several of them, and even a scientific hearer by some; and that, even where the fallacy does not actually deceive, the proper mode of meeting and

* Eurip. Hecub. 293.

τὸ δ' ἄξιωμα, καὶ κακῶς λέγῃς, τὸ σὸν
 πείσει· λόγος γὰρ ἔκ τ' ἀδοξούντων ἰὼν
 κακὰ τῶν δοκούντων αὐτὸς οὐ ταῦτ' ἐν σθένει.

Aristot. Rhetoric. I. ii. p. 1356, a. 5-15.

exposing it will not occur unless to one previously exercised in Dialectic.* That Fallacies *In Dictione*, taken as a class (though these are what he declares to be the most usual *modus operandi* of the sham dialecticians called Sophists^b), often passed unperceived, and were hard to solve and elucidate even when perceived—we know to have been his opinion; for it is not only in the *Topica* and *Sophistici Elenchi*, but also in the *Metaphysica* and other works,^c that he takes pains to analyse and discriminate the several distinct meanings borne by terms familiar to every one, such as *idem*, *unum*, *pulchrum*, *bonum*, *amare*, *album*, *acutum*, &c., which terms therefore, when employed in argument, were always liable to introduce a fallacy of Equivocation or Amphiboly. He tells us the like in specifying the seven Fallacies *Extra Dictionem*: that they also were often unnoticed, and required vigilant practice to see through and solve. The description in detail, therefore, which Aristotle gives (in *Sophistici Elenchi*) of the working process peculiar to the litigious Sophist, is completely at variance with the definition which he had given of the sophistic syllogism at the commencement of the *Topica*. That definition is indeed suitable for the *type-specimens* which he and other logicians give to illustrate this or that class of Fallacies: the type-specimen produced must carry absurdity on the face of it, so that the reader may at first sight recognize

* Soph. El. v. p. 167, a. 5-15, b. 5-35. καὶ λανθάνει πολλάκις οὐχ ἥττον αἰτούς τοὺς ἐρωτῶντας τὸ τοιοῦτον.—vii. p. 169, a. 22-30, b. 8-15: ἐν ἅπασιν γὰρ ἡ ἀπάτη διὰ τὸ παρὰ μικρόν.—xv. p. 175, a. 20.

^b Ibid. i. p. 165, a. 2-20.

^c Topic. I. vii. p. 103, a. 6-39; p. 106, b. 3-9; p. 107, a. 12, b. 7: πολλάκις δὲ καὶ ἐν αὐτοῖς τοῖς λόγοις λαν-

θάνει παρακολουθοῦν τὸ ὁμώνυμον. Cf. *Topica*, II. iii. p. 110, b. 33; V. ii. p. 129, b. 30, seq.; VI. x. p. 148, a. 23, seq. Soph. El. x. p. 171, a. 17.

Compare also Book Δ. of the *Metaphysica*, and the frequent recognition and analysis τῶν πολλαχῶς λεγομένων throughout the other Books of the *Metaphysica*.

it as a fallacy; and he may even find difficulty in believing that any one can really be imposed upon by such trifling. But, though suitable for the type-specimen taken separately, this definition fails in the essential character which Aristotle postulates for a definition, since it is quite untrue and unsuitable for numerous instances of the class intended to be illustrated.* Aristotle was the first who attempted to distribute Fallacies into classes, such that, while in each class there were certain specimens palpably stamped with the fallacious character, there were also in each class an indefinite multitude of analogous cases wherein the fallacious character did not reveal itself openly or easily, but required attentive consideration to detect it, often indeed remaining undetected, and producing its natural fruit of error and confusion. This was one of his many great merits in regard to Logic; and the classification of Fallacies (modified as to details) has passed to all subsequent logicians, so that we find difficulty in understanding that the contemporaries of Sokrates and Plato had no idea of it. But the value of his service to Logic would be much lessened, if all fallacies were sophistic syllogisms, intended to deceive but never really deceiving, corresponding to his definition at the beginning of the *Topica*; if (as he tells us in the *Sophistici Elenchi*) they were only impudent forgeries put in circulation by a set of professional knaves called Sophists; and if all non-sophistical dialecticians, and all the world without, could be trusted as speaking correctly by nature and as never falling into them.

* *Topic. VI. i. p. 139, a. 26*: δὲ γὰρ τὸν τοῦ ἀνθρώπου ὀρισμὸν κατὰ παντὸς ἀνθρώπου ἀληθεύειν.—*VI. x. p. 148, b. 2*: δὲ γὰρ ἐπὶ πᾶν τὸ συνώνυμον ἐφαρμόττειν.

the *Topica*, wherein Aristotle indicates to the questioner *Locis* for impugning a definition, will see how little this definition of the Sophistic Syllogism will stand such attacks.

Whoever reads the Sixth Book of

The appeal made by Aristotle to a difference of character and motives as the distinction between the Dialectician and the Sophist is all the more misplaced, because he himself lays down as the essential feature of Dialectic generally, that it is a match or contention between two rivals, each anxious to obtain the victory. It is like a match at chess between two expert players, or a fencing-match between two celebrated masters at arms. Its very nature is to be an attack and defence, in which each combatant resorts to stratagem, and each outwits the other if he can. Whether the match is played for money or for nothing—whether the contentious spirit is more or less intense—does not concern the theorist on dialectical procedure. It is indispensable that both the questioner and the respondent should exert their full force, the one in thrusting, the other in parrying; if they do not, the purpose of Dialectic, which is the common business of both, will not be attained. That purpose is clearly declared by Aristotle. It is not didactic: he distinguishes it expressly from teaching,* where one man who knows communicates such knowledge to an ignorant pupil. It is gymnastic, exercising the promptitude and invention of both parties; or peirastic, testing whether the respondent knows a given thesis in such manner as to avoid being driven into answers inconsistent with each other or notoriously false.^b Each party seeks, not to help or enlighten but, to puzzle and defeat the other. As at chess or in fencing, to mask one's projects and deceive the adversary is essential to the work and to its purpose; each expects it from the other, and undertakes to meet and parry it. The theses debated were

* Soph. El. ii. p. 165, b. 1-5; x. p. 171, a. 32-b. 2. Cf. Topica, VIII. xi. p. 161, a. 25.

^b Topic. I. i. p. 100, a. 20; VIII. i. p. 155, b. 10-28.

always such that arguments might be found both for the affirmative and for the negative.

According to Aristotle himself, therefore, the Dialectician is agonistic and eristic, just as much as the Sophist. If the one tries to entrap his opponent for the purpose of victory, so also does the other: the line which Aristotle draws between them is one not founded upon any real distinction between two purposes and modes of procedure, but is merely verbal and sentimental; putting aside under a discredited title what he himself disliked. He admits that the dialectical questioner, whenever the thesis which he undertakes to refute is true, can never refute it except by inducing the respondent to concede what is false; that, even where the thesis is false, he often can only refute it by some other incompatible falsehood, because he cannot obtain from the respondent better premisses; that, where the thesis is probable and conformable to received opinion, his only way of refuting it is by entrapping the respondent into concessions paradoxical and contrary to received opinion.^a But these ends—fallacious refutation, falsehood, and paradox—are the very same as those which Aristotle (in the *Sophistici Elenchi*)^b sets forth as the peculiar characteristics of the litigious Sophist. And the improving intellectual tendencies which he ascribes to Sophistic, are almost identical with those attributed to Dialectic, being declared in very similar words.^c That there were dialecticians of every degree of merit, in the time of Aristotle, cannot be doubted; some clever and ready, others stupid and destitute of invention. But that there were any two classes of dialecticians such as

^a Topic. VIII. xi. p. 161, a. 24.

^b Soph. El. iii. p. 165, b. 14.

^c Compare Topic. I. ii. p. 101, a.

26-b. 4, with Soph. El. xvi. p. 175, a. 5-16.

he describes and contrasts—one heretical class, called Sophists, who purposely and habitually employed the thirteen fallacious refutations, and another orthodox class who purposely avoided or habitually abstained from them—we may most reasonably doubt. If the argument in the *Sophistici Elenchi* is good at all, it is good against all Dialectic. The Sophist, as Aristotle describes him, is only the Dialectician looked at on the unfavourable side and painted by an enemy. We know that there were in Greece many enemies of Dialectic generally; the intense antipathy inspired by the cross-examining colloquy of Sokrates, and attested by his own declarations, is a sufficient proof of this. The enemies of Sokrates depicted him—as Aristotle depicts the Sophist in the *Sophistici Elenchi*—as a clever fabricator of fallacious contradictions and puzzles; to which Aristotle adds the farther charge (advanced by Plato before him) against the Sophist, of arguing for lucre—which is an irrelevant charge, travelling out of the region of art, and bearing on the personal character of the individual. If the sophistical stratagems were discreditable and mischievous when exhibited for money, they would be no less such if exhibited gratuitously. The sophistical discourse is not (as Aristotle would have us believe) generically distinguishable from the dialectical;^a nor is Sophistic an art distinct from Dialectic while adjoining to, it, but an inseparable portion of the tissue of Dialectic itself.^b If the Sophist passed himself off as knowing what he did not really know, so also did the Dialectician; as we know from the testimony of Sokrates, the most consummate master of the art. The conflict of two minds each taking

^a *Soph. El. ii. p. 165, a. 32; xxxiv. p. 183, b. 1.*

^b *Plato, Apol. Sokrat. p. 23, A.*

Compare this with *Aristot. Soph. El. i. p. 165, a. 30.*

advantage of the misconceptions, short-comings, and blindness of the other, is the essential feature of Dialectic as Aristotle conceives it; to which the eight books of his *Topica* are adapted, with their multiplicity of distinctions and precepts both for attack and defence. There cannot be a game of chess without stratagems, nor a fencing-match without feints; the power of such aggressive deception is one characteristic mark of a good player. Those who teach or theorize on the game do not seek to exclude stratagem, but furnish precautions to prevent it from succeeding. Mastery of the art assumes skill in defence as well as in attack.

Doubtless, there are rules that require to be observed in the dialectical attack and defence, as there are rules for all other matches such as chess or fencing. I should have been glad if Aristotle had given a precise and tenable explanation what these rules were. He describes the Sophist as one who plays the game unfairly; but we have already seen that the ends pursued by the Dialectician generally are hardly at all distinguishable from those aimed at by the Sophist. If we look to the account of the means employed by one and the other, we shall in like manner fail to see how any real line can be drawn between them.

Thus, one proceeding declared to be characteristic of the Sophist is—that he puts multiplied questions apparently at random, without any visible bearing on the thesis; practising a sort of fishing examination, in order to obtain some answer of which he may take advantage.* But, when we turn to the Eighth Book of the *Topica*, we find

* *Soph. El.* xii. p. 172, b. 9-25.

Aristotle treats the Sophists as guilty of dishonourable proceeding herein—*δύνανται δὲ νῦν ἥττον κα-
κουργεῖν διὰ τούτων ἢ πρότερον.* The very same charge was urged

against the dialectic of Sokrates by his opponents: Plato, *Hippias Minor*, p. 373—*ἀλλὰ Σωκράτης αἰεὶ ταραττεῖ ἐν τοῖς λόγοις καὶ ἔοικεν ὥσπερ κακου-
γούντι.* Compare Plato, *Gorgias*, pp. 461, B., 482, E., 483, A.

Aristotle expressly recommending the like manœuvre to the Dialectician; advising him to conceal as much as possible the scheme and intended series of his questions—to begin as far as possible apart from the thesis, to put the questions in a succession designedly incoherent and unintelligible, and to obtain (what, if obtained, ensured complete success) the full extent of premisses necessary for his final refutative syllogism, without the respondent being aware that he had conceded them.^a The questioner is farther advised to throw the respondent off his guard by affecting indifference whether each question is answered affirmatively or negatively, and by occasionally taking objection against himself, in order that he may create the impression of a strictly honest purpose.^b If we compare the interrogative procedure which Aristotle recommends to the Dialectician with that which he blames in the Sophist, we shall find that the former is even a greater refinement of deception than the latter.

The next trick which we find ascribed to the Sophist is—that he conducts the train of interrogation in such manner as to bring it upon a ground on which his memory is abundantly furnished with topics. Aristotle adds that this may be done well and honourably, or ill and dishonourably.^c From his own admission we see that

^a Topic. VIII. i. p. 155, b. 1.-p. 155, b. 30; p. 156, a. 5-22. Compare *Analyt. Priora*, II. xix. p. 66, a. 33.

^b Topic. VIII. i. p. 156, b. 3, 17. Compare VIII. i. pp. 155-156, with *Soph. El.* xv. p. 174, a. 28.

^c *Soph. El.* xii. p. 172, b. 26. In Topic. III. i. p. 116, a. 20, Aristotle prescribes the same procedure to the Dialectician. See also Waitz's note on the passage.

Alexander (in *Scholia*, p. 267, b. 8) tells us that it was customary for the Sophists to put questions lying away

from the thesis, and he shows this by mentioning the Platonic *Protagoras*, in which he says that the Sophist Protagoras does so. But the illustration here produced does not serve Alexander's purpose. The Sophist Protagoras (in the Platonic dialogue so called) is represented, not as shifting dialectic from one point to another, but as running away from it altogether into long discourse and continuous rhetoric (*Plato, Protagor.* pp. 333, 334, 335). In respect to the thesis started for debate, the dialectic

this practice was not peculiar to Sophists, but was common also to those whom he calls Dialecticians: like every other part of the procedure, it might be done well or ill; but wherein this difference consisted he does not further explain. Indeed, when we recollect that the elaborate details and classification of the *Topica* are mainly intended to furnish the memory with an abundant store of premisses well-arranged and ready for interrogation,^a we may be sure that every Dialectician who had gone through the trouble of learning them would be impatient to apply them; and would make an opportunity for doing so, if none were spontaneously tendered to him. But, if the answers obtained were totally irrelevant to his final purpose of refuting the thesis, they would be nothing but embarrassment to him.^b We must, therefore, understand that the questions put would be such as tended ultimately to introduce that refutative Syllogism which the questioner was bound to conclude with. If they were not, he was of course punished by failure.

A third manœuvre treated as peculiar to the Sophist is—that he takes account of the particular philosophical sect to which the respondent belongs, and endeavours to bring out by interrogations whatever there may be paradoxical in the tenets of that sect.^c But would not any expert Dialectician do just the same? What else would be done by Sokrates, if cross-examining an Anaxagorean or a Herakleitean? or by Aristotle himself, if interrogating a Platonist?

Another proceeding treated as peculiar to the Sophist

of Sokrates departs from it as widely as that of Protagoras, and this is acknowledged at the close of the dialogue, p. 361. Compare 'Plato and the Other Companions of Sokrates', Vol. II. pp. 53, 59, 70.

^a *Topica*, I. v. p. 102, a. 13; I. xiii. p. 105, a. 22; VIII. xiv. p. 163, a. 31-b. 2.

^b Aristotle himself observes this, *Topica*, II. v. p. 112, a. 14.

^c *Soph. El.* xii. p. 172, b. 29.

is—that he seeks to drive the respondent into a paradox, by bringing out in cross-examination certain well-known antitheses or contradictions which subsist together in the opinions of mankind. Thus, men profess in their public talk high principles of virtue; but secretly and at the bottom of their hearts they desire to get wealth or power *per fas et nefas*. Again, there are two kinds of justice: one, that which is just by nature and in truth, such as wise men or philosophers approve; the other, that which is just according to law or custom, such as the multitude in this or in some other society approve. There is, also, conflict between the authority of a father, and that of the wise; between justice and expediency; and as to whether it is more eligible to suffer wrong or to do wrong.* All these antitheses are presented to us in the Platonic Gorgias, to which (*i.e.*, to the speech of Kallikles therein) Aristotle here makes reference; and he numbers it among the vices distinguishing the Sophist from the genuine Dialectician—to dwell upon such antitheses for the purpose of forcing the respondent into paradoxical answers. But, surely, the antitheses here fastened upon that obnoxious name are of a class utterly opposed to the class of *pseudo-probabilia*, which he tells us are the peculiar game of the litigious Sophist, though every man of ordinary intelligence detects them at first sight as fallacies. They are all real and serious issues,^b having plausible arguments *pro* and *con*, debateable without end, and settled

* Soph. El. xii. p. 172, b. 36-p. 173, a. 30.

^b Rhetoric. II. xxv. p. 1402, a. 33: *οἱ μὲν γὰρ συλλογισμοὶ ἐκ τῶν ἐνδόξων, δοκοῦντα δὲ πολλὰ ἐναντία ἀλλήλοις εἰσὶν.*

A disputant who argued about these memorable ethical antitheses, must

be allowed *κατὰ τὸ πρᾶγμα θεωρεῖν τὰ κοινά*, which is the characteristic feature assigned by Aristotle to the Dialectician, as contrasted with the Sophist (Soph. El. xi. p. 171, b. 5), in so far as I can understand the words *κατὰ τὸ πρᾶγμα*. See note ^b p. 94 *supra*.

by every man for himself according to his own sentiment and predisposition. They are exactly the subject-matter best fitted for the acute Dialectician. No man would be allowed by Aristotle to deserve that title, if he omitted to raise and argue them, the thesis being supposed suitable.^a Aristotle himself speaks often of the equivocal sense of the term justice—of the distinction between what is just by nature and what is just according to some local or peculiar sentiment.^b The manœuvre which Aristotle imputes to the Sophist being exactly the same as that which Kallikles imputes to Sokrates in the Platonic Gorgias,^c it is Sokrates, and not Kallikles, who serves here as illustrating what Aristotle calls a Sophist. Indeed, if we read the Gorgias, we shall find the Platonic Sokrates there represented as neglecting the difference between what is probable (conformable to received opinion) and what is paradoxical. He admits that he stands alone in his opinion, against all the world, and his opponents even imagine that he is bantering them; but he confides in his own individual reason and consistency, so as to be able to reduce all opponents dialectically to proved contradiction with themselves.^d Himself maintaining a paradox, he constrains his respondent by acute dialectic to assent to it; which is exactly what Aristotle imputes to the Sophists of his day as a reproach.

Some predecessors of Aristotle had distinguished arguments or discourses into two separate classes—those addressed to the name, and those addressed to the

^a Topica, I. iii. p. 101, a. 5-10. *ἐκ τῶν ἐνδεχομένων ποιεῖν ἃ προαιρούμεθα.* δὴ καὶ σὺ (Sokrates) τοῦτο τὸ σοφὸν κατανενοηκώς κακουργεῖς ἐν τοῖς λόγοις,

^b Ibid. II. xi. p. 115, b. 25. *ἔαν μὲν τις κατὰ νόμον λέγῃ, κατὰ φύσιν ὑπερωτῶν, ἔαν δὲ τὰ τῆς φύσεως, τὰ τοῦ νόμου.* ἔαν μὲν τις κατὰ νόμον λέγῃ, κατὰ φύσιν ὑπερωτῶν, ἔαν δὲ τὰ τῆς φύσεως, τὰ τοῦ νόμου.

^c Plato, Gorgias, pp. 470, 472, 481, 482.

^d Plato, Gorgias, pp. 482-483. *ὁ*

thought.^a This distinction Aristotle disapproves, denying certainly its pertinence and almost its reality. There can be no arguments addressed to the thought only, apart from the name: all of them must be addressed to the name, and through it to the thought.^b Whether an argument is addressed to the thought or not, depends not upon any thing in the argument itself, but upon the meaning which one respondent or other may happen to attach to the words: if the respondent understands it as the questioner intended, it is addressed to the thought; if not, not.^c To require that the questioner shall distinguish accurately the sense in which he puts the question, would, according to Aristotle, convert him into a teacher—would confound the line between Dialectic and Didactic.^d And this may be granted; but not less, if Dialecticians are to refrain from all those proceedings which Aristotle notes and condemns as peculiar to the Sophist, must they be held to pass into the attitude of teacher and learner; the questioner doing what he can, not to embarrass but, to enlighten and assist the respondent. The purpose of victory, and the stimulus of competition in the double function of question and answer (while entirely absent from Didactic), are quite as essential to the Dialectician as to the Sophist. That the Sophist seeks victory unscrupulously and at all cost, while the Dialectician respects certain rules

^a Soph. El. x. p. 170, b. 12: οὐκ ἔστι δὲ διαφορὰ τῶν λόγων ἢν λέγουσι τινες, τὸ εἶναι τοὺς μὲν πρὸς τοῦτομα λόγους, ἑτέροισ δὲ πρὸς τὴν διάνοιαν.

From this allusion (and other allusions also xvii. p. 176, a. 6; xx. p. 177, b. 8; xxii. p. 178, b. 10) to the doctrines of predecessors, we see that the assertion made by Aristotle (in

the last chapter of *Sophistici Elenchi*) of his own originality, and of the absence of prior researches, must be taken with some indulgence.

^b Soph. El. x. p. 170, b. 23.

^c Ibid. b. 28: οὐ γὰρ ἐν τῷ λόγῳ ἔστι τὸ πρὸς τὴν διάνοιαν εἶναι, ἀλλ' ἐν τῷ τὸν ἀποκρινόμενον ἔχειν πῶς πρὸς τὰ δεδομένα.

^d Ibid. p. 171, a. 28, seq.

and limits of the procedure—is a difference well deserving to be noticed; yet not a *differentia* giving name and essence to a new species. The unfair Dialectician is a Dialectician still; all his purposes remain the same, though the means whereby he pursues them are altered. This distinction of means between the two, Aristotle has taken very insufficient pains to point out. Rude and provocative manner, either on the part of questioner or respondent, and impudent assumption of concessions which have neither been asked nor granted,—these are justly enumerated as illustrations of unfair Dialectic.* But the enumeration is most incompletely performed; because Aristotle, in his anxiety to erect Sophistic into an art or procedure by itself, distinct from and alongside of Dialectic, has transferred to it much that belongs to fair and admissible Dialectic. Hence the really unfair and objectionable means are not often brought into the foreground.

Though Aristotle speaks so contemptuously about Sophistic, he nevertheless indicates *Loci* (or general heads of subjects) to assist the sophistical questioner in attacking, and precepts to the sophistical respondent for warding off attack. On the whole, these precepts are not materially different from those laid out in the *Topica* for Dialectic; except that he gives greater prominence to Solecism and Tautology, as thrusts practised by the sophistical questioner. He insists upon the intellectual usefulness of practice in sophistical debate, hardly less than in what he calls dialectical, and, as was remarked, upon similar grounds.^b He recommends it as valuable not only for imparting readiness and abundance in argument, but also for solitary meditation and for inves-

* Soph. El. xv. p. 174, a. 22, b. 10.

^b Ibid. xvi. p. 175, a. 5-16. Compare *Topica*, I. ii. p. 101, a. 30, seq.

tigation of scientific truths. Without it (he declares) we cannot become familiar with the equivocations of terms and propositions, nor acquire the means of escaping them. If we allow ourselves to be entangled in them, without being aware of it, by others, we shall also be entangled in them when we pursue reflections of our own.^a It is not enough to see generally that there is a fallacy; we must farther learn to detect at once the precise seat of the fallacy, and to point out rapidly how it may be cleared up. This is the more difficult to do, because fallacies that we are thoroughly aware of will often escape our notice under inversion and substitution of words.^b Unless we acquire promptitude by frequent exercise in such debates, we shall find ourselves always unprepared and behind-hand in each particular case of confusion. If we complain and condemn such debates generally, we shall appear to do so upon no better grounds than our own stupidity and incompetence.^c

Accordingly the *Sophistici Elenchi* contains precepts, at considerable length,^d to the respondent in a sophistical debate, how reply or solution is to be given to the fallacies involved in the questions; all the thirteen Fallacies, (the six *In Dictione*, and the seven *Extra Dictionem*) being treated in succession. In conducting his defensive procedure, the respondent must keep constantly in mind what the Sophistical Refutation really

^a Soph. El. xvi. p. 175, a. 9: δέυτερον δὲ πρὸς τὰς καθ' αὐτὸν ζητήσεις (χρήσιμοι): ὁ γὰρ ὑφ' ἑτέρου ῥαδίως παραλογιζόμενος καὶ τοῦτο μὴ αἰσθανόμενος κἂν αὐτὸς ὑφ' αὐτοῦ τοῦτο πάθοι πολλάκις.

^b Ibid. a. 20: οὐ ταῦτ' ὅτι ἐστὶ λαβόντα τε τὸν λόγον ἰδεῖν καὶ λῦσαι τὴν μοχθηρίαν, καὶ ἐρωτώμενον ἀπαντᾶν

δύνασθαι ταχέως. δὲ γὰρ ἴσμεν, πολλάκις μετατιθέμενον ἀγνοοῦμεν. Compare xxxiii. p. 182, b. 7.

^c Ibid. xvi. p. 175, a. 25: ὥστε, ἂν δῆλον μὲν ᾖ μὴ ᾖ, ἀμελέηται δ' ὥμεν, ὑστεροῦμεν τῶν καιρῶν πολλάκις.

^d From xvi. p. 175, to xxxiii. p. 183, of Soph. El.

is. He must treat it not as a real or genuine refutation, but as a mere simulation of such; and he must so arrange his reply as to bring into full evidence this fact of simulation. What he has to guard against is, not the being really refuted but, the seeming to be refuted.^a The refutative syllogism constructed by the sophistical questioner, including as it does Equivocation, Amphiboly, or some other verbal fallacy, and therefore yielding no valid conclusion, does not settle whether the respondent is really refuted or not. If indeed the questioner, in putting his interrogation, discriminates the double meaning of his words, where they have a double meaning, the respondent ought to answer plainly and briefly Yes, or No; either affirming or denying what is tendered. But, if the questioner does not so discriminate, the respondent cannot reply simply Yes, or No: he must himself discriminate the two meanings, and affirm or deny accordingly.^b Unless he guards himself by such discrimination, he cannot avoid falling into a contradiction, at least in appearance. The equivocal wording of the question will be tantamount to the fallacy of putting two questions as one.^c

As the questioner may propound as refutation what seems to be such but is not so in reality, so the respon-

^a Soph. El. xvii. p. 175, a. 33: ὅλως γὰρ πρὸς τοὺς ἐριστικούς μαχετόν, οὐκ ὡς ἐλέγχοντας, ἀλλ' ὡς φαινομένους· οὐ γάρ φαμεν συλλογίζεσθαι γε αὐτούς, ὥστε πρὸς τὸ μὴ δοκεῖν διορθωτέον.

^b Ibid. b. 1-14. Compare Topica, VIII. vii. p. 160, a. 29.

Aristotle tells us that this demand for a reply brief and direct, without any qualifying additions or distinctions, was advanced by dialecticians

in former days much more emphatically than in his own—ὁ τ' ἐπεξηγητοῦσι νῦν μὲν ἦττον πρότερον δὲ μᾶλλον οἱ ἐριστικοί, τὸ ἢ ναὶ ἢ οὐ ἀποκρίνεσθαι τὸν ἐρωτώμενον, ἐγίνετ' αὖν. I presume that he makes comparison with the Platonic dialogues—Euthydemus, p. 295; Gorgias, pp. 448-449; Protagoras, pp. 334-335.

^c Soph. El. xvii. 175, b. 15-p. 176, a. 18.

dent may meet it by what is an apparent solution but no solution in reality. There occur various cases, in sophistic or agonistic debate, wherein a simulated solution of this kind is even preferable to a real one.^a If the question is plausible, the respondent may answer, "Be it so"; but, if it involves any paradox in answering, he will answer by saying, "So it would appear": he will thus not be supposed to have granted what amounts to refutation or paradox.^b Where the question put is such that, while involving falsehood or paradox if answered in the affirmative, it is at the same time closely or immediately connected with the thesis set up,—the respondent may treat it as equivalent to a *Petitio Principii*, and make answer in the negative. Also, where the questioner, trying to establish an universal proposition by Induction, puts the final question, not under an universal term but, as the general result of the particulars conceded (and such like),—the respondent may refuse to admit this last step, and may say that his antecedent concessions have been misunderstood.^c

If a question is put in plain and appropriate language, answer must be made plainly or with some clear distinction; but, where the question is put obscurely and elliptically, leaving part of the meaning unexpressed, the respondent must not concede it unreservedly. If he does, fallacious refutation may very possibly be the result:^d he may appear to be refuted by that which is no real refutation. If, of two propositions, the second follows upon the first, but the first does not follow upon the second, the respondent, where he has the choice, ought to grant the second

^a Soph. El. xvii. p. 176, a. 21.

^b Ibid. a. 25. ^e

Ibid. a. 27-35.

^d Ibid. a. 38-b. 7.

only, and not the first. He ought not to make a greater concession when he can escape with a less;* *e.g.*, he ought to concede the particular rather than the universal.

Again, among opinions generally received, there are some which the public recognize as matters of more or less doubt and uncertainty; others, on which they are firmly assured that every one who contradicts them speaks falsely. When it is uncertain to which of these two classes the question put is referable, the respondent will be safer in answering neither affirmatively nor negatively, but simply, "I go with the received opinions."^b In cases where opinions are divided, he may find opportunity for changing the terms, and for substituting a metaphorical equivalent as what he concedes. Such change of terms may pass without protest, in consequence of the doubtful character of the matter; while it will embarrass the questioner in constructing his refutation.^c The respondent may farther embarrass him by anticipating questions that seem likely to be put, and by objecting against them beforehand.^d

When the questioner has obtained the premisses which he thinks necessary, and has drawn from them a refutative syllogism, the respondent must see whether he can properly solve that syllogism or not.^e A good and proper solution is, to point out on which premiss the fallacy of the conclusion depends. First, he must

* Soph. El. xvii. p. 176, b. 8-13.

^b Ibid. b. 14-20.

Both the text and the meaning of this difficult clause are differently given by various commentators. The text and construction of Waitz appears to me the best, and I have followed him. I cannot agree with Mr. Poste when he declares (notes, p. 143)

ἀποφάνσεις to be the true reading, instead of *ἀποφάσεις*, which last is adopted both by Bekker and in the edition of Firmin Didot.

^c Ibid. b. 20-25. ^d Ibid. b. 26.

* Soph. El. xviii. p. 176, b. 29: *ἡ μὲν ὀρθὴ λύσις ἐμφάνσεις ψευδοῦς συλλογισμοῦ, παρ' ὁποῖαν ἐρώτησιν συμβαίνει τὸ ψεῦδος.*

examine whether it is formally correct, or whether it has only a false appearance of being so : if the last be the case, he must distinguish in which of the premisses and in what way such false appearance has arisen. If on the other hand the syllogism is formally correct, he must look whether the conclusion is true or false. Should it be true, he cannot solve the syllogism except by controverting one or both of the premisses ; but should the conclusion be false, two modes of solution are open to him. One mode is, if he can point out an equivocation or amphiboly in the terms of the conclusion ; another mode will be, to controvert, or exhibit a fallacy in, one of the premisses.* The respondent, however, must learn to apply this examination rapidly and unhesitatingly : to do so at once is very difficult, though it may be easily done if he has leisure to reflect.^b

Aristotle then proceeds to indicate the modes in which the respondent may provide solutions for each

* Soph. El. xviii. p. 176, b. 38 : τοὺς μὲν κατὰ τὸ συμπέρασμα ψευδεῖς διχῶς ἐνδέχεται λύειν· καὶ γὰρ τῷ ἀνελεῖν τι τῶν ἡρωτημένων, καὶ τῷ δεῖξαι τὸ συμπέρασμα ἔχον οὐχ οὕτως.

Mr. Poste translates these last words—"or by a counterproof directed against the conclusion:" and he remarks in his note (pp. 145-147), "that this assertion — disproof of the conclusion of the refutative syllogism is one mode of *solution*—is both manifestly inadmissible, and flatly contradicted by Aristotle himself elsewhere." The words of Aristotle doubtless seem to countenance Mr. Poste's translation ; yet the contradiction pointed out by Mr. Poste (and very imperfectly explained, p.

147) ought to make us look out for another meaning ; which is suggested by the chapter immediately following (xix. p. 177, a. 9), where Aristotle treats of the Fallacies of Equivocation and Amphiboly. He tells us that equivocation may be found either in the conclusion or in the premisses ; and that to show it in the conclusion is one mode of solving or invalidating the refutation. This is what Aristotle means by the words cited at the beginning of this note : τῷ δεῖξαι τὸ συμπέρασμα ἔχον οὐκ ὀρθῶς. In Mr. Poste's translation these words mean the same as ἀνελεῖν used just before, which Aristotle obviously does not intend.

^b Soph. El. xviii. p. 177, a. 7.

of the thirteen heads of fallacious refutation above enumerated. For these thirteen classes, he pronounces that one and the same solution will be found applicable to all fallacies contained in one and the same class.^a

Thus, in the two first of them—Equivocation of Terms and Amphiboly of Propositions—duplicity of meaning must be either in the conclusion, or in the premisses, of the refutative syllogism. If it be in the conclusion, the refutation must at once be rejected, unless the respondent has previously admitted some proposition containing the equivocal word as one of its terms, so that the refutation may appear to contradict it expressly and distinctly. But, if it be in the premisses, then there is no necessity that the respondent should have previously admitted such a proposition; for the equivocal word may form the middle term of the refutative syllogism, and may thus not appear in the conclusion thereof.^b The proper way for the respondent to deal with these questions, involving equivocation or amphiboly, is to answer them, at the outset, with a reserve for the double meaning, thus: "In one sense, it is so; in another sense, it is not." If he does not perceive the double meaning until he has already answered the first question, he must recover himself, when he answers the second, by pointing out the equivocation more distinctly, and by specifying how much he is prepared to concede.^c Even if he has been taken unawares, and has not perceived the equivocation until the refutative syllogism has been constructed simply and absolutely, he should still contend that he never meant to concede

^a Scholia, p. 312, a. 4, Br.; Soph. El. 20, p. 177, b. 31: τῶν γὰρ παρὰ ταῦτόν λόγων ἡ αὐτὴ λύσις, &c.

^b Soph. El. xix. p. 177, a. 18: ὁσοῖς δ' ἐν τοῖς ἐρωτήμασιν, οὐκ

ἀνάγκη προαποφῆσαι τὸ διπτόν· οὐ γὰρ πρὸς τοῦτο ἀλλὰ διὰ τοῦτο ὁ λόγος.

^c Ibid. a. 24: εἴαν δὲ λάθῃ, ἐπὶ τέλει προστιθέντα τῇ ἐρωτήσει διορθωτέον &c.

what has been apparently refuted, and that the refutation tells only against the name, not against the thing meant;* so that there is no genuine refutation at all.

In the next two Fallacies—those of Composition and Division, or Conjunction and Disjunction—when the questioner draws up his refutative syllogism as if one of the two had been conceded, the respondent will retort by saying that his concession was intended only in the other construction of the words. This fallacy is distinct from Equivocation; and it is a mistake to try (as some have tried) to reduce all fallacies to Equivocation or Amphiboly.^b The respondent will distinguish, in each particular case, that construction of the words which he intended in his admission, from that which the questioner assumes in his pretended refutation.^c

The Fallacies of Accent rarely furnish sophistical refutations,^d but those of *Figura Dictionis* furnish a great many. When two words have the like form and structure, it may naturally be imagined that the signification of one belongs to the same Category as that of the other. But this is often an illusion; and in such cases a sophistical refutation may be founded thereupon. The respondent will solve it by denying the inference from similarity of form to similarity of meaning, and by distinguishing accurately to which among the ten Categories the meaning of each several word or

* Soph. El. xix. p. 177, a. 30: *ὅπως τε μαχετόν, ἂν καὶ ἀπλῶς συλλογίζεται, ὅτι οὐχ ὁ ἐφησεν ἀπέφησε πρῶγμα, ἀλλ' ὄνομα· ὥστ' οὐκ ἔλεγχος.*

Instead of *ἂν καί*, Julius Pacius reads *καὶ*: the meaning is much the same.

^b Soph. El. xx. p. 177, a. 33-b. 9. *οὐ πάντες οἱ ἔλεγχοι παρὰ τὸ διττόν, καθάπερ τινὲς φασιν.*

This is another of the evidences showing that there were theorists prior to Aristotle on logical proof; and that his declaration of originality (in the concluding chapter of *Sophist. Elenchi*) must be taken with reserve.

^c Soph. El. xx. p. 177, b. 10-26: *διαμετέον οὖν τῷ ἀποκρινόμενῳ &c.*

^d Ibid. xxi. p. 177, b. 35.

each proposition belongs. When two words thus seem, by their form, to belong to the same Category, the questioner will often take it for granted, without expressly asking, that they do belong to the same, and will found a confutation thereupon; but the respondent must not admit the confutation to be valid, unless this question has been explicitly put to him and conceded.^a A question is put which, in its direct and obvious meaning, bears only on the category of Quantity, of Quality, of Relation, of Action, or of Passion; but the respondent, not aware of the equivocation, answers it in such a manner as to comprehend the Category of Substance, and is so understood by the questioner when he constructs his refutative syllogism. The respondent will secure himself from being thus confuted, by keeping constantly in view to which of the Categories his answer is intended to refer.^b

^a Soph. El. xxii. p. 178, a. 4-28. τὸ γὰρ λοιπὸν αὐτὸς προστίθῃσιν ὁ ἀκούων ὡς ὁμοίως λεγόμενον· τὸ δὲ λέγεται μὲν οὐχ ὁμοίως, φαίνεται δὲ διὰ τὴν λέξιν.

^b Several illustrative examples of this mode of sophistical refutation, founded on the Fallacy called *Figura Dictionis*, are indicated in this chapter by Aristotle. The indication however, is often so brief and elliptical, that there is great difficulty in restoring the fallacies in full, and still greater difficulty in translating them into any modern language.

1. Is it possible at the same time to do and to have done the same thing?—No. To see something is to do something; to have seen something is to have done something?—Yes. Is it possible at the same time to see and to have seen the same thing?—Yes.

The respondent has thus contradicted himself. The form of the word ὄραν appears to rank it under the Category ποιεῖν. However, I think that the mistake really made here was, that the respondent returned an answer universally negative to the first question.

2. Does anything coming under the Category *Pati* come under the Category *Agere*?—No. But *ρέμνεται*, *καίεται*, *αἰσθάνεται*, all show by their form that they belong to the Category *Pati*?—Yes. Again, *λέγειν*, *τρέχειν*, *ὄραν*, show by their form that they belong to the Category *Agere*?—Yes. You will admit, however, that τὸ ὄραν is *αἰσθάνεσθαι τι*?—Certainly. Therefore something that belongs to the Category *Agere* belongs also to that of *Pati*.

If we turn back to Aristot. Categ. viii. p. 11, a. 37, we shall find that

As a general rule, in all the refutations founded on the seven Fallacies *In Dictione*, the respondent will

he admits the possibility that the same subject may belong to two distinct Categories.

3. Did any one write that which stands here written?—Yes. It stands here written that you are standing up—a false statement; but when it was written the statement was true?—Yes. Therefore the writer has written a statement both true and false?—Yes.

Here *true* and *false* belong to the Category Quality; the statement or matter written belongs to that of Substance. What the writer wrote had nothing to do with the former of the two Categories; and no contradiction has been made out by admitting that the statement *was* once true but *is* now false.

4. Does a man tread that which he walks?—Yes. But he walks the whole day?—Yes. Therefore he treads the whole day.

Here the Category of *Quando* is confused with that of Substance.

5. But the most interesting illustration of this confusion of one Category with another, is furnished by Aristotle in respect of the difference between himself and Plato as to Ideas or Universals. According to Plato the universal term denoted a separate something apart from the particulars, yet of which each of these particulars partook. According to Aristotle it denoted nothing separate from the particulars, but something belonging (essentially or non-essentially) to all and each of the particulars. In the Platonic theory it was an *Hoc Aliquid* (τὸδε τι), or had an existence substantive and separate: in the Aristotelian it was a *Quale* or *Quale Quid* (ποιόν), having an existence merely adjective or predicative. Aristotle

maintains that Plato or the Platonists placed it in the wrong Category—in the Category of Substance instead of in that of Quality.

Now it is by rectifying this confusion of Categories that Aristotle solves two argumentative puzzles which he ranks as sophistical:—(1) The argument concluding in what was called the 'Third Man'; (2) The following question: Koriskus, and the musical Koriskus—are these the same, or is the second different from the first?

What is called the 'Third Man' was a refutation of the Platonic theory of Ideas. Because Plato recognized a substantive existence, corresponding to each common denomination connoting likeness, apart from all the similar particulars denominated, e. g., a Self-man, or separate self-existent man, corresponding to the Idea, and apart from all individual men Caius, &c.—opponents argued against him, saying:—If this is recognized, you must also recognize that the Self-man, and the individual man called Caius, have also a common denomination and similarity, which (upon your principles) corresponds to another Ideal Man, or a Third Man. You must, therefore, go on inferring upwards to a Fourth Man, a Fifth Man, &c., and so onwards to an indefinite number of Ideal Men, one above the other. This was intended as a refutation, by *Reductio ad Impossibile*, of the Platonic view of Ideas as separate Entities, each of them One and Universal. But Aristotle here treats it as a Sophistical Refutation; and he indicates what he calls the solution of it by saying that it confounds the Categories of Substance and Quality, putting the

solve the refutation by distinguishing the double meaning of the words or of the phrase, and by adopting as

Universal (which ought to be under the Category of Quality) under the Category of Substance. He has no right, however, to include this among Sophistical Refutations, which are (as he himself defines them) not real but fallacious refutations, invented by a dishonest money-getting profession called Sophists, and which are solved by pointing out the precise seat of the fallacy. The refutation called the 'Third Man' is so far from being fallacious, that it is valid, and is recited as such elsewhere by Aristotle himself (Metaphys. A. ix. p. 990, b. 17); while the solution tendered by Aristotle, instead of being a solution, is a confirmation, pointing out, not where the fallacy of the refutation resides but, where the fallacy of the doctrine refuted resides. Moreover, if we are to treat the refutation called the 'Third Man' as sophistical, we must number Plato himself among the dishonest class called Sophists. Here is one among the many proofs that the strong line drawn by Aristotle between the Dialectician and the Sophist is quite untenable. The argument is distinctly enunciated in the Platonic Parmenides (pp. 131-133).

The meaning of the Universal (Aristotle maintains) must be considered as predicative only, tacked on to some *Hoc Aliquid*, and belonging to *Quale* or some other of the nine latter Categories. It may be set out as a distinct subject for logical consideration and reasoning: but it cannot be set out as a distinct existence beyond and apart from its particulars (*παρὰ τοὺς πολλοὺς ἔν τι*). It is *ποιόν*, and it cannot even be recognized as *ὑπὲρ ποιόν* or *αὐτο-ποιόν*, for this would put it apart from all the other *ποιά*, and would be open to the refutation

above noticed called the 'Third Man.' Such is the drift of the very difficult passage of the *Sophistici Elenchi* (xxii. p. 178, b. 37-p. 179, a. 10). I differ from Mr. Poste's translation (p. 71) of part of this passage, and still more from the explanation given in the latter part of his note (p. 155). I think that the doctrine of *τὸ ἐν παρὰ τὰ πολλά* is produced by Aristotle here and elsewhere in his work as untrue and inadmissible, not as his own doctrine. Mr. Poste understands this passage differently from the previous translators, with whom I agree for the most part, though M. Barthélemy St. Hilaire appears to me to have missed the hinge upon which Aristotle's argument turns, by translating *ὑπὲρ ποιόν*—*id ipsum, quod quale est* (J. Pacius)—"*une qualité*:" the argument turns upon the distinction between *ὑπὲρ ποιόν* and *ποιόν*.

I come now to the second sophistical refutation given by Aristotle: Koriskus, and the musician Koriskus—are the two the same or different? This is what Aristotle calls a sophistical or fallacious argument (compare Metaphys. E. ii. p. 1026, b. 15); but it can hardly be so called with propriety, for the only solution that Aristotle himself gives of it is, that the two are *idem numero*, but in an improper or secondary sense (Topica, I. vii. p. 103, a. 30); *i. e.*, that they are in one point of view the same, in another point of view different—they are *ἐν κατὰ συμβεβηκός*. See Aristot. Metaph. Δ. vi. p. 1015, b. 16; Scholia, p. 696, a. 22, seq.; and Alexand. Aphrodis. ad Metaph. pp. 321, 322, 414, 415, ed. Bonitz. I understand Aristotle to say that *Κόρισκος μουσικός* cannot be properly *set out* or *abstracted* (*οὐκ*

his own the one opposite to that which the questioner proceeds upon. If the Fallacy is of Conjunction and Disjunction, and if the questioner assumes Conjunction, the respondent will adopt Disjunction; if it be a Fallacy of Accent, and if the questioner assumes the grave accent, the respondent will adopt the acute.^a

Passing to the Fallacies *Extra Dictionem*, where the sophistical refutation is founded upon a Fallacy of Accident, the respondent ought to apply one and the same solution to all. He will say: "The conclusion does not necessarily follow from the premisses"; and he will be prepared with an example, in which the conclusion obtained under this fallacy is notoriously untrue.^b "Do you know Koriskus?"—"Yes." "Do you know the distant person coming this way?"—"No." "That distant person is Koriskus: therefore you know, and you do not know, the same person." The inference here is not necessary. To be coming this way—is an accident of Koriskus; and, because you do not know the accident, we cannot infer that you do not know the subject; such may or may not be the case.^c

The major premiss upon which the preceding sophistical refutation must rest, is, That it is impossible both

ἔστιν αὐτὸ ἐκθίσθαι), because it includes two Categories (Substance and Quality) in one; wherefore it cannot be properly compared either with *Κόρισκος* simply (Category of Substance), or with *μουσικός* simply (Category of Quality). It seems strange that Aristotle does not notice this argumentative difficulty in the discussion which he bestows on ταῦτόν in the Seventh Book of the Topica. The subtle reasonings, very hard to follow, which Aristotle employs (Physic. V. iv. p. 227) might have

made him cautious in treating the difficulties of opponents as so many dishonest cavils. It is curious that Alexander, in reciting the sophistical argument, assumes as a matter of course that ὁ γραμματικὸς Σωκράτης is ὁ αὐτὸς τῷ Σωκράτει (Schol. ad Metaphys. p. 736, b. 26, Brand.).

^a Soph. El. xxiii. p. 179, a. 11-25.

^b Ibid. xxiv. p. 179, a. 30: ῥητέον οὖν συμβιβασθέντας ὁμοίως πρὸς πάντας ὅτι οὐκ ἀναγκαῖον ἔχειν δεῖ προφέρειν τὸ οἶον.

^c Ibid. a. 35-b. 7.

to know and not to know the same thing. This must be put as a direct question by the questioner, and must be conceded by the respondent, before the intended refutation can be made good. Now there are some persons who solve the refutation by answering this question in the negative, and by saying that it is possible both to know and not to know the same thing, only not in the same respect: such is the case when we know Koriskus, but do not know Koriskus approaching from a distance.* Aristotle disapproves this mode of solution, as well as another mode which refers the fallacy to equivocation of terms. He points out that there are many other sophistical refutations, coming under the general head of *Fallaciæ Accidentis*, to which such solution will not apply; and that there ought to be one uniform mode of solution applicable to every fallacy coming under the same general head; though he admits at the same time that particular sophistical refutations may be vicious in more than one way. He says, moreover, that this contradiction or negation of the premiss is no true solution; for a solution ought to bring to view clearly the reason why the

* Soph. El. xxiv. p. 179, b. 7, 18, 37: λύουσι δέ τινες ἀναιρούντες τὴν ἐρώτησιν φασὶ γὰρ ἐνδέχασθαι ταῦτὸ πρᾶγμα εἰδέναι καὶ ἀγνοεῖν, ἀλλὰ μὴ κατὰ ταῦτό.

Mr. Poste (pp. 152-157) translates ἀναιρούντες τὴν ἐρώτησιν—"contradicting the thesis," and he expresses his surprise at the assertion, observing (very truly) that contradiction of the thesis is the very opposite of a solution; it helps in the very work which the refutation aims at accomplishing. But I cannot think that ἐρώτησις does mean "the thesis," either here or in the other passage to which

Mr. Poste refers (xxii. p. 178, b. 14). I think it means a premiss which the respondent has conceded, or must be presumed to have conceded, essential to the validity of the refutation. The term ἐρώτησις cannot surely, with any propriety, be applied to the thesis. It means either a question, or what is conceded in reply to a question; and the *thesis* cannot come under either one meaning or the other, being the proposition which the respondent sets out by affirming and undertakes to defend.

fallacious refutation appears to be a real refutation. Thus the *Fallacia Accidentis* consists in an inference that what is true of an accident is true also of the subject thereof: you explain that such inference, though apparently cogent, has no real cogency, and in that explanation consists the only proper solution of the fallacy.^a

In like manner, all those Fallacies which come under the general head of *A dicto Secundum Quid ad dictum Simpliciter*, can only be solved by pointing out, in each particular case, in what terms this confusion is concealed—wherein resides the inference apparently cogent which is mistaken for one really cogent. The respondent is driven to an apparent contradiction, by having granted premisses from which the inference is derivable that both sides of the *Antiphrasis* are true—that the same predicate A may be both affirmed and denied of the same subject B. He solves the contradiction by analysing the *Antiphrasis*, and by showing that affirmation is *secundum quid*, while denial is *simpliciter*; and that there is a contradiction not real, but only apparent, between the two.^b

In like manner, the Fallacy *Ignoratio Elenchi* will be solved by analysing the two supposed counter-propositions of the *Antiphrasis*, and by showing that there is no real contradiction or inconsistency between them.^c

In regard to the Fallacies under *Petitio Principii*, the respondent, if he perceives that the premiss asked of him involves such a fallacy, must refuse to grant it, however probable it may be in itself. If he does not perceive this until after he has granted it, he must throw back the charge of mal-procedure upon the ques-

^a Soph. El. xxiv. p. 179, b. 23: ἤν γὰρ ἡ λύσις ἐμφάνισις ψευδοῦς συλλογισμοῦ, παρ' ὃ ψευδής.

^b Ibid. xxv. p. 180, a. 23-31.

^c Ibid. xxvi. p. 181, a. 1-14.

tioner; declaring that an Elenchus involving assumption of the matter in question is null, and that the concession was made under the supposition that some separate and independent syllogism was in contemplation.^a

There are two distinct ways in which the *Fallacia Consequentis* may be employed. The predicate may be an universal, comprehending the subject: because animal always goes along with man, it is falsely inferred that man always goes along with animal; or it is falsely inferred that not-animal always goes along with not-man. The fallacy is solved when this is pointed out. The last inference is only valid when the terms are inverted; if animal always goes along with man, not-man will always go along with not-animal.^b

If the sophistical refutation includes more premisses than are indispensable to the conclusion, the respondent, after having satisfied himself that this is the fact, will point out the mal-procedure of the questioner, and will say that he conceded the superfluous premiss, not because it was in itself probable but, because it seemed relevant to the debate; while nevertheless the questioner has made no real or legitimate application of it towards that object.^c This is the mode of solution applicable in the case of the Fallacies coming under the head *Non Causa pro Causâ*.^d

Where the sophistical questioner tries to refute by the *Fallacia Plurium Interrogationum* (i.e., by putting two or more questions as one), the respondent should forthwith divide the complex question into its component simple questions, and make answer accordingly. He must not give one answer, either affirmative or nega-

^a Soph. El. xxvii. p. 181, a. 15-21.

^b Ibid. xxviii. p. 181, a. 22-30. ἀνάπαλιν γὰρ ἡ ἀκολουθήσις.

^c Ibid. xxix. p. 181, a. 31-35. ^d Schol. p. 318, a. 36, Br.

tive, to that which is more than one question. Even if he does give one answer, he may sometimes not involve himself in any contradiction; for it may happen that the same predicate is truly affirmable, or truly deniable, of two or more distinct and independent subjects. Often, however, the contrary is the case: no one true answer, either affirmative or negative, can be given to one of these complex questions; the one answer given, whatever it be, must always be partially false or inconsistent.* Suppose two subjects, A and B, one good, the other bad: if the question be, Whether A and B are good or bad, it will be equally true to say—Both are good, or, Both are bad, or, Both are neither good nor bad. There may indeed be other solutions for this fallacy: Both or All may signify two or more items taken individually, or taken collectively; but the only sure precaution is—one answer to one question.^b

Suppose that, instead of aiming at a seeming refutation, the Sophist tries to convict the respondent of Tautology. The source of this embarrassment is commonly the fact that a relative term is often used and conveys clear meaning without its correlate, though the correlate is always implied and understood. The respondent must avoid this trap by refusing to grant that the relative has any meaning at all without its correlate; and by requiring that the correlate shall be distinctly enunciated along with it. He ought to treat the relative without its correlate as merely a part of the whole significant expression—as merely syncategorematic: just as ten is in the phrase—ten minus one, or as the affirmative word is in a negative proposition.^c

* Soph. El. xxx. p. 181, a. 38: οὔτε πλείω καθ' ἐνός οὔτε ἐν κατὰ πολλῶν, ἀλλ' ἐν καθ' ἐνός φατέον ἢ ἀποφατέον.

^b Ibid. b. 6-25.

* Ibid. xxxi. p. 181, b. 26: οὐ δοτέον τῶν πρὸς τι λεγομένων σημαίνειν τι χωριζόμενας καθ' αὐτὰς τὰς κατηγορίας.

Mr. Poste observes in his note:—

Thus he will not recognize double as significant by itself without its correlate half, nor half without its correlate double; although in common parlance such correlate is often understood without being formally enunciated.

Lastly, another purpose which Aristotle ascribes to the Sophist, is, that of driving the respondent into a Solecism—into some grammatical or syntactical impropriety, such as, using a noun in the wrong case or gender, using a pronoun with a different gender or number from the noun to which it belongs, &c. He points out that the solution of these verbal puzzles must be different for each particular case; in general, when thrown into a regular syllogistic form, even the questioner himself will be found to speak bad Greek. The examples given by Aristotle do not admit of being translated into a modern language, so as to preserve the solecism that constitutes their peculiarity.*

After having thus gone through the different artifices ascribed to the Sophist, and the ways of solving or meeting them, Aristotle remarks that there are material distinctions between the different cases which fall under one and the same general head of Sophistical Paralogism. Some cases there are in which both the fallacy itself, and the particular point upon which it turns, are obvious and discernible at first sight. In other cases, again, an ordinary person does not perceive that there is any fallacy at all; or, if he does perceive it, he often does not detect the seat of the

"The sophistic locus of tautology may be considered as a caricature of a dialectic locus. One fault which dialectic criticism finds with a definition is the introduction of superfluous words." He then cites *Topica*, VI. ii. (p. 141, a. 4, seq.); but in this passage we find that the repetition of the same word is declared not to be an argumentative impropriety, so that the Sophist would gain nothing by driving his opponent into tautology.

* *Soph. El.* xxxii. p. 182, a. 7-b. 5.

fallacy, so that one man will refer the case to one general head, and another, to a different one.^a Thus, for example, Fallacies of Equivocation are perhaps the most frequent and numerous of all fallacies: some of them are childish and jocular, not really imposing upon any one; but there are others again in which the double meaning of a word is at first unnoticed, and is disputed even when pointed out, so that it can only be brought to light by the most careful and subtle analysis. This happens especially with terms that are highly abstract and general; which are treated by many, including even philosophers like Parmenides and Zeno, as if they were not equivocal at all, but univocal.^b Again, the *Fallaciæ Accidentis*, and the other classes *Extra Dictionem*, are also often hard to detect. On the whole, it is often hard to determine, not merely to which of the classes any case of fallacy belongs, but even whether there is any fallacy at all—whether the refutation is, or is not, a valid one.^c

The pungent arguments in debate are those which bite most keenly, and create the greatest amount of embarrassment and puzzle.^d In dialectical debate a puzzle arises, when the respondent finds that a correct syllogism has been established against him, and when he does not at once see which among its premisses he ought to controvert, in order to overthrow the con-

^a Soph. El. xxxiii. p. 182, b. 6-12.

^b Ibid. b. 13-25: ὥσπερ οὖν ἐν τοῖς παρὰ τὴν ὁμωνυμίαν, ὅσπερ δοκεῖ τρόπος εὐθεστάτος εἶναι τῶν παραλογισμῶν, τὰ μὲν καὶ τοῖς τυχοῦσιν ἐστὶ δῆλα—τὰ δὲ καὶ τοὺς ἐμπειροτάτους φαίνεται λανθάνειν· σημείον δὲ τούτων ὅτι μάχονται πολλάκις περὶ ὀνομάτων, οἷον πότερον ταῦτ' ἀνθρώπος κατὰ πάντων τὸ ἐν καὶ τὸ ἐν ἡ ἕτερον.

^c Ibid. b. 27: ὁμοίως δὲ καὶ περὶ τοῦ συμβεβηκότος καὶ περὶ τῶν ἄλλων ἕκαστον, οἱ μὲν ἔσονται ῥήτους ἰδεῖν οἱ δὲ χαλεπώτεροι τῶν λόγων· καὶ λαβεῖν ἐν τινι γένει, καὶ πότερον ἔλεγχος ἢ οὐκ ἔλεγχος, οὐ ῥᾶδιον ὁμοίως περὶ πάντων.

^d Ibid. 32: ἔστι δὲ δριμύς λόγος ὅστις ἀπορεῖν ποιεῖ μάλιστα· δάκνει γὰρ οὗτος μάλιστα.

clusion. In the eristic or sophistic debate the puzzle of the respondent is, in what language to enunciate his propositions so as to keep clear of the subtle objections which will be brought against him by the questioner.* It is these pungent arguments that most effectually stimulate the mind to investigation. The most pungent of all is, where the syllogistic premisses are highly probable, yet where they nevertheless negative a conclusion which is also highly probable. Here we have an equal antithesis as to presumptive credibility, between the premisses taken together on one side and the conclusion on the other.^b We do not know whether it is in the

* Soph. El. xxxiii. p. 182, b. 33 : ἀπορία δ' ἐστὶ διττή, ἡ μὲν ἐν τοῖς συλλελογισμένοις, ὃ τι ἀνέλη τις τῶν ἐρωτημάτων, ἡ δ' ἐν τοῖς ἐριστικοῖς, πῶς εἶπη τις τὸ προταθέν. The difficulty here pointed out, of finding language not open to some logical objection by an acute Sophist, is illustrated by what he himself states about the caution required for guarding his definitions against attack; see De Interpret. vi. p. 17, a. 34 : λέγω δὲ ἀντικείμεθα τὴν τοῦ αὐτοῦ κατὰ τοῦ αὐτοῦ, μὴ ὁμωνύμως δέ, καὶ ὅσα ἄλλα προσδιορίζομεθα πρὸς τὰς σοφιστικὰς ἐνοχλήσεις. What is here meant by σοφιστικαὶ ἐνοχλήσεις is expressed elsewhere by πρὸς τὰς λογικὰς δυσχερείας—Metaphys. Γ. iii. p. 1005, b. 21; N. i. p. 1087, b. 20. See the Scholia (pp. 112, 651, Br.) of Ammonius and Alexander upon the above passages of De Interpret. and Metaphys.

^b Soph. El. xxxiii. p. 182, b. 37-p. 183, a. 4 : ἔστι δὲ συλλογιστικὸς μὲν λόγος δριμύτατος, ἃν ἐξ ὅτι μάλιστα δοκούντων ὅτι μάλιστα ἔνδοξον ἀναιρῇ· εἰς γὰρ ἃν ὁ λόγος, μετατιθεμένης τῆς ἀντιφάσεως, ἀπαντᾷ ὁμοίους ἔξει τοὺς συλλογισμούς· αἰὲ γὰρ ἐξ ἐν-

δόξων ὁμοίως ἔνδοξον ἀναιρῇ[σιν]· διόπερ ἀπορεῖν ἀναγκαῖον. μάλιστα μὲν οὖν ὁ τοιοῦτος δριμύς, ὁ ἐξ ἴσου τὸ συμπέρασμα ποιῶν τοῖς ἐρωτήμασι. I transcribe this text as it is given by Bekker, Waitz, Bussemaker, and Mr. Poste. The editions anterior to Bekker had the additional words ἡ κατασκευάζη after ἀναιρῇ in the fourth line; and M. Barthélemy St. Hilaire in his translation defends and retains them. Bekker and the subsequent editors have omitted them, but have retained the last words ἡ κατασκευάζει in the seventh line. To me this seems inconsistent: the words ought either to be retained in both places or omitted in both. I think they ought to be omitted in both. I have enclosed them in brackets in the fifth line.

This difficult passage (not well explained by Alexander, Schol. p. 320, b. 9) requires the explanations of Waitz and Mr. Poste. The note of Mr. Poste is particularly instructive, because he expands in full (p. 164) the three "similar syllogisms" to which Aristotle here briefly alludes. The phrase μετατιθεμένης τῆς ἀντιφάσεως is determined by a passage in

premisses only, or in the conclusion, that we are to look for untruth: the conclusion, though improbable, may yet be true, while we may find that the true conclusion has been obtained from untrue premisses; or the conclusion may be both improbable and untrue, in which case we must look for untruth in one of the premisses also—either the major or the minor. This is the most embarrassing position of all. Another, rather less embarrassing, is, where our thesis will be confuted unless we can show the confuting conclusion to be untrue, but where each of the premisses on which the conclusion depends is equally probable, so that we do not at once see in which of them the cause of its untruth is to be sought. These two are the most pungent and perplexing argumentative conjunctures of dialectical debate.

But in eristic or sophistic debate our greatest embarrassment as respondents will arise when we do not at once see whether the refutative syllogism brought against us is conclusive or not, and whether it is to be solved by negation or by distinction.* Next in order as to embarrassment stands the case, where we see in which of the two processes (negation or distinction) we are to find our solution, yet without seeing on which

Analyt. Priora, II. viii. p. 59, b. 1: it means "employment of the contradictory of the conclusion, in combination with either one of the premisses, to upset the other." The original syllogism is assumed to have two premisses, each highly probable, while the conclusion is highly improbable, being the negation of a highly probable proposition. The original syllogism will stand thus:—All M is P; All S is M; *Ergo*, All S is P: the two premisses being supposed highly probable, and the conclusion highly

improbable. Of course, therefore, the contradictory of the conclusion will be highly probable—Some S is not P. We take this contradictory and employ it to construct two new syllogisms as follows:—All M is P; Some S is not P; *Ergo*, Some S is not M. And again, Some S is not P; All S is M; *Ergo*, Some M is not P. All these three syllogisms are similar in this respect: that each has two highly probable premisses, while the conclusion is highly improbable.

* *Soph. El.* xxxiii. p. 183, a. 7.

of the premisses we are to bring the process to bear; or whether, if distinction be the process required, we are to apply it to the conclusion, or to one of the premisses.* A defective syllogistic argument is silly, when the deficient points are of capital importance—relating to the minor or to the middle term, or when the assumptions are false and strange; but it will sometimes be worthy of attention, if the points deficient are outlying and easily supplied; in which cases it is the carelessness of the questioner that is to blame, rather than the argument itself.^b Both the line of argument taken by the questioner, and the mode of solution adopted by the respondent, may be directed towards any one of three distinct purposes: either to the thesis and main subject discussed; or to the adversary personally (*i.e.*, to the particular way in which he has been arguing); or to neither of these, but simply to prolong the discussion (*i.e.*, against time). The solution may thus be sometimes such that it would take more time to argue upon it than the patience of the auditors will allow.^c

The last chapter of the *Sophistici Elenchi* is employed by Aristotle in recapitulating the scope and procedure of the nine Books of *Topica* (reckoning the *Sophistici Elenchi* as the Ninth, as we ought in

* *Soph. El.* xxxiii. p. 183, a. 9: δέντερος δὲ τῶν ἄλλων ὁ δῆλος μὲν ὅτι παρὰ διαίρεσιν ἢ ἀναίρεσιν ἐστὶ, μὴ φανερός δ' ὧν διὰ τίνος τῶν ἠρωτημένων ἀναίρεσιν ἢ διαίρεσιν λυτός ἐστίν, ἀλλὰ πότερον αὕτη παρὰ τὸ συμπέρασμα ἢ παρὰ τι τῶν ἐρωτημάτων ἐστίν.

Mr. Poste translates these last words very correctly:—"Whether it is one of the premisses or the conclusion that requires distinction." Here

Aristotle again speaks of a mode of solution furnished by applying *distinction* (*διαίρεσις*) to the conclusion as well as to the premisses, though he does not say that solution can be furnished by applying *disproof* (*ἀναίρεσις*) to the conclusion. See my remarks, a few pages above, on Mr. Poste's note respecting ch. xviii. (*supra*, p. 113).

^b *Ibid.* a. 14-20.

^c *Ibid.* a. 21.

propriety to do); and in appreciating the general bearing and value of that treatise, having regard to the practice and theory of the day.

The business of Dialectic and Peirastic is to find and apply the syllogizing process to any given thesis, with premisses the most probable that can be obtained bearing on the thesis. This Aristotle treats as the proper function of Dialectic *per se* and of Peirastic; considering both—the last, of course—as referring wholly to the questioner. His purpose is to investigate and impart this syllogizing power—the power of questioning and cross-examining a respondent who sets up a given thesis, so as to drive him into inconsistent answers. It appears that Aristotle would not have cared to teach the respondent how he might defend himself against this procedure, if there had not happened to be another art—Sophistic, closely bordering on Dialectic and Peirastic. He considers it indispensable to furnish the respondent with defensive armour against sophistical cross-examination; and this could not be done without teaching him at the same time modes of defence against the cross-examination of Dialectic and Peirastic. For this reason it is (Aristotle tells us*)

* Soph. El. xxxiv. p. 183, a. 37-b. 8: προειλόμεθα μὲν οὖν εὐρεῖν δύναμιν τινα συλλογιστικὴν περὶ τοῦ προβληθέντος ἐκ τῶν ὑπαρχόντων ὡς ἐνδοξοτάτων· τοῦτο γὰρ ἔργον ἐστὶ τῆς διαλεκτικῆς καθ' αὐτὴν καὶ τῆς πειραστικῆς. ἐπεὶ δὲ προσκατασκευάζεται πρὸς αὐτὴν διὰ τὴν τῆς σοφιστικῆς γειτνίασιν, ὡς οὐ μόνον πείραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὡς εἰδώς, διὰ τοῦτο οὐ μόνον τὸ λεχθὲν ἔργον ὑπεθέμεθα τῆς πραγματείας τὸ λόγον δύνασθαι λαβεῖν, ἀλλὰ καὶ ὅπως λόγον ὑπέχοντες φυ-

λάξομεν τὴν θέσιν ὡς δι' ἐνδοξοτάτων ὁμοτρόπως. τὴν δ' αἰτίαν εἰρήκαμεν τούτου, ἐπεὶ καὶ διὰ τοῦτο Σωκράτης ἡρώτα ἀλλ' οὐκ ἀπεκρίνετο· ὡμολόγει γὰρ οὐκ εἰδέναι.

It appears to me that in one line of this remarkable passage a word has dropped out which is necessary to the sense. We now read (about the middle) ὡς οὐ μόνον πείραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὡς εἰδώς. Now the words πείραν λαβεῖν, as the passage stands, must be construed along with ὡς εἰδώς, and this makes no meaning at all, or an inadmissible

that he has included in the *Topica* precepts on the best mode of defending the thesis by the most probable arguments, as well as of impugning it. The respondent professes to know (while the questioner does not), and must be taught how to maintain his thesis like a man of knowledge. Sokrates, the prince of dialecticians, did nothing but question and cross-examine: he would never be respondent at all; for he explicitly disclaimed knowledge. And if it were not for the neighbourhood of Sophistic, Aristotle would have thought it sufficient to teach a procedure like that of Sokrates. It was the danger from sophistical cross-examination that led him to enlarge his scheme—to unmask the Sophists by enumerating the paralogisms peculiar to them, and to indicate the proper scheme of the responses and solutions whereby the respondent might defend himself against them. We remember that Aristotle treats all paralogisms and fallacies as if they belonged to a peculiar art or profession called Sophistic, and as if they were employed by Sophists exclusively; as if the

meaning. I think it clear that the word *ὑπέχειν* or *δοῦναι* has dropped out before *εἰδώς*. The passage will then stand:—ὥς οὐ μόνον πείραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὑπέχειν (or *δοῦναι*) ὥς εἰδώς. When this verb is supplied the sense will be quite in harmony with what follows, which at present it is not. *Πείραν λαβεῖν* applies to the questioner, but not to the respondent; ὥς *εἰδώς* applies to the respondent, but not to the questioner; *πείραν ὑπέχειν* applies to the respondent, and is therefore the fit concomitant of ὥς *εἰδώς*. The translation given by Mr. Poste *first* (p. 93):—"professing not only to test knowledge with the resources of Dialectic, but also to maintain any thesis with the infallibility of science"

—appears to me (excepting the word *infallibility*, which is unsuitable) to render Aristotle's thought, though not his words as they now stand; but Mr. Poste has given what he thinks an amended translation (p. 175):—"Since it claims the power of catechizing or cross-examining not only dialectically but also scientifically." This second translation may approach more nearly to the present words of Aristotle, but it departs more widely from his sense and doctrine. Aristotle does not claim for either Dialecticians or Sophists the power of cross-examining scientifically. He ascribes to the Sophists nothing but cavil and fallacy—verbal and extra-verbal—the pretence and sham of being wise or knowing (*Soph. El. i., ii. p. 165*).

Dialecticians and the Peirasts, including among them Sokrates and Plato, put all their questions without ever resorting to or falling into paralogisms.

Aristotle, we have already more than once seen, asserts emphatically his claim to originality as having been the first to treat these subjects theoretically, and to suggest precepts founded on the theory. On all important subjects (he remarks) the elaboration of any good theory is a gradual process, the work of several successive authors. The first beginnings are very imperfect and rudimentary; upon these, however, subsequent authors build, both correcting and enlarging, until, after some considerable time, a tolerably complete scheme or system comes to be constructed. Such has been the case with Rhetoric and other arts. Tisias was the first writer and preceptor on Rhetoric, yet with poor and insufficient effect. To him succeeded Thrasyarchus, next Theodorus, and various others; from each of whom partial improvements and additions were derived, until at length we have now (it is Aristotle that speaks) a copious body of rhetorical theory and precept, inherited from predecessors and accumulated by successive traditions. Compared with this, the earliest attempt at theory was indeed narrow and imperfect; but it was nevertheless the first step in a great work, and, as such, it was the most difficult and the most important. The task of building on a foundation already laid, is far easier.^a

^a Soph. El. xxxiv. p. 183, b. 17-26: τῶν γὰρ εὕρισκομένων ἀπάντων τὰ μὲν παρ' ἐτέρων ληφθέντα πρότερον πεποιημένα κατὰ μέρος ἐπιδέδωκεν ὑπὸ τῶν παραλαβόντων ὕστερον· τὰ δ' ἐξ ὑπαρχῆς εὕρισκόμενα μικρὰν τὸ πρῶτον ἐπίδοσιν λαμβάνειν εἴωθε, χρησιμωτέραν μὲντοι πολλῶ τῆς ὕστερον ἐκ τού-

των αὐξήσεως· μέγιστον γὰρ ἴσως ἀρχὴ παντός, ὥσπερ λέγεται διὰ καὶ χαλεπώτατον· ὅσῳ γὰρ κράτιστον τῇ δυνάμει, τοσοῦτ' μικρότατον ἐν τῷ μεγέθει χαλεπώτατόν ἐστιν ὀφθῆναι· ταύτης δ' εὐρημένης ῥᾶον προστιθέναι καὶ συναύξειν τὸ λοιπὸν ἐστίν.

While rhetorical theory has thus been gradually worked up to maturity, the case has been altogether different with Dialectic. In this I (Aristotle) found no basis prepared; no predecessor to follow; no models to copy. I had to begin from the beginning, and to make good the first step myself. The process of syllogizing had never yet been analysed or explained by any one; much less had anything been set forth about the different applications of it in detail. I worked it out for myself, without any assistance, by long and laborious application.* There existed indeed paid teachers, both in Dialectic and in Eristic (or Sophistic); but their teaching has been entirely without analysis, or theory, or system. Just as rhetoricians gave to their pupils orations to learn by heart, so these dialectical teachers gave out dialogues to learn by heart upon those subjects which they thought most likely to become the topics of discourse. They thus imparted to their pupils a certain readiness and fluency; but they communicated no art, no rational conception of what was to be sought or avoided, no skill or power of dealing with new circumstances.^b They proceeded like men, who, professing to show how comfortable covering might be provided for the feet, should not teach the pupil

* Soph. El. xxxiv. p. 184, a. 8: καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἶχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἡ τριβὴ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.

^b Ibid. a. 1: διόπερ ταχεῖα μὲν ἄτεχνος δ' ἦν ἡ διδασκαλία τοῖς μανθάνουσι παρ' αὐτῶν οὐ γὰρ τέχνην ἀλλὰ τὰ ἀπὸ τῆς τέχνης διδόντες παιδεύειν ὑπελάμβανον.

Cicero, in describing his own treatise De Oratore, insists upon the

marked difference between his mode of treatment and the common rhetorical precepts; he claims to have followed the manner of the Aristotelian Dialogues:—"Scripsi Aristoteleo more, quemadmodum quidem volui, tres libros in disputatione ac dialogo de Oratore, quos arbitror Lentulo tuo fore non inutiles. Abhorrent enim a communibus præceptis, atque omnem antiquorum et Aristoteleam et Isocrateam rationem oratoriam complectuntur" (Cicero, Epist. ad Famill. i. 9).

how he could make shoes for himself, but should merely furnish him with a good stock of ready-made shoes—a present valuable indeed for use, but quite unconnected with any skill as an artificer. The Syllogism as a system and theory, with precepts founded on that theory for Demonstration and Dialectic, has originated first with me (Aristotle). Mine is the first step, and therefore a small one, though worked out with much thought and hard labour: it must be looked at as a first step, and judged with indulgence. You, my readers, or hearers of my lectures, if you think that I have done as much as can fairly be required for an initiatory start, compared with other more advanced departments of theory, will acknowledge what I have achieved, and pardon what I have left for others to accomplish.*

Such is the impressive closing chapter of the *Sophistici Elenchi*. It is remarkable in two ways: first, that Aristotle expressly addresses himself to hearers and readers in the second person; next, that he asserts emphatically his own claim to originality as a theorist on Logic, and declares himself to have worked out even the first beginnings of such theory by laborious application. I understand his claim to originality as intended to bear, not simply on the treatise called *Sophistici Elenchi* and on the enumeration of Fallacies therein contained, but, in a larger sense, on the theory of the Syllogism; as first unfolded in the *Analytica*

* *Soph. El.* xxxiv. p. 184, b. 3: *εἰ δὲ φαίνεται θεασαμένοις ὑμῖν ὡς ἐκ τοιούτων ἐξ ἀρχῆς ὑπαρχόντων ἔχειν ἡ μέθοδος ἰκανῶς παρὰ τὰς ἄλλας πραγματείας τὰς ἐκ παραδόσεως ἡυξημένας, λοιπὸν ἂν εἴη πάντων ὑμῶν ἢ τῶν ἡκροαμένων ἔργον τοῖς μὲν παραλελειμμένοις τῆς μεθόδου συγγνώμην τοῖς δ'*

εὐρημένοις πολλὴν ἔχειν χάριν.

It would seem that by *τοῖς θεασαμένοις* Aristotle means to address the readers of the present treatise, while by *τῶν ἡκροαμένων* he designates those who had heard his oral expositions on the same subject.

Priora, applied to Demonstration in the *Analytica Posteriora*, applied afterwards to Dialectic in the *Topica*, applied lastly to Sophistic (or Eristic) in the *Sophistici Elenchi*. The phrase, "Respecting the *process of syllogizing*,^a I found absolutely nothing prepared, but worked it out by laborious application for myself"—seems plainly to denote this large comprehension. And, indeed, in respect to Sophistic separately, the remark of Aristotle that nothing whatever had been done before him, would not be well founded: we find in his own treatise of the *Sophistici Elenchi* allusion to various prior doctrines, from which he dissents.^b In these prior doctrines, however, his predecessors had treated the sophistical modes of refutation without reference to the Syllogism and its general theory.^c It is against such separation that Aristotle distinctly protests. He insists upon the necessity of first expounding the Syllogism, and of discussing the laws of good or bad Refutation as a corollary or dependant of the syllogistic theory. Accordingly he begins this treatise by intimating that he intends to deduce these laws from the first and highest generalities of the subject;^d and he concludes it by claiming this method of philosophizing as original with himself.

^a Soph. El. xxxiv. p. 184, b. 1: *περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἶχομεν πρότερον ἄλλο λέγειν, &c.* (cited in a preceding note).

^b See note on p. 107, *supra*.

^c Ibid. x. p. 171, a. 1: *ὅλως τε ἀτοπον, τὸ περὶ ἐλέγχου διαλέγεσθαι, ἀλλὰ μὴ πρότερον περὶ συλ-*

λογισμοῦ· ὁ γὰρ ἔλεγχος συλλογισμός ἐστιν, ὥστε χρή καὶ περὶ συλλογισμοῦ πρότερον ἢ περὶ ψευδοῦς ἐλέγχου.

^d Ibid. i. p. 164, a. 21: *λέγωμεν, ἀρξάμενοι κατὰ φύσιν ἀπὸ τῶν πρώτων.*

CHAPTER XI.

PHYSICA AND METAPHYSICA.

ARISTOTLE distinguishes, in clear and explicit language, a science which he terms Wisdom, Philosophy, or First Philosophy; the subject-matter of which he declares to be *Ens quatenus Ens*, together with the concomitants belonging to it as such. With this Ontology the treatise entitled *Metaphysica* purports to deal, and the larger portion of it does really so deal. At the same time, the line that parts off Ontology from Logic (Analytic and Dialectic) on the one hand, and from Physics on the other, is not always clearly marked. For, though the whole process of Syllogism, employed both in Analytic and Dialectic, involves and depends upon the Maxim of Contradiction, yet the discussion of this Maxim is declared to belong to First Philosophy; while not only the four Aristotelian varieties of Cause or Condition, and the distinction between Potential and Actual, but also the abstractions Form, Matter and Privation, which play so capital a part in the *Metaphysica*, are equally essential and equally appealed to in the *Physica*.^b

If we include both what is treated in the *Analytica Posteriora* (the scientific explanation of Essence and

^a *Metaphys.* Γ. iii. p. 1005, a. 19-13; compare K. i. p. 1059, a. 24.
^b *Physica*, I. pp. 190-191; II. p. 194, b. 20, seq.; *Metaph.* A. p. 983, a. 33; Alexander ad *Metaphys.* Δ. p. 306, ed. Bonitz; p. 689, b. Schol. Br.

Definition) and what is treated in the *Physica*, we shall find that nearly all the expository processes employed in the *Metaphysica* are employed also in these two treatises. To look upon the general notion as a cause, and to treat it as a creative force (*der schöpferische Wesensbegriff*, to use the phrase of Prantl and other German logicians*), belongs alike to the *Physica* and to the *Analytica Posteriora*. The characteristic distinction of the treatise entitled *Metaphysica* is, that it is all-comprehensive in respect to the ground covered; that the expository process is applied, not exclusively to any separate branch of *Ens*, but to *Ens* as a whole *quatenus Ens*—to all the varieties of *Ens* that admit of scientific treatment at all;^b that the same abstractions and analytical distinctions, which, both in the *Analytica* and in the *Physica*, are indicated and made to serve an explanatory purpose, up to a certain point—are in the *Metaphysica* sometimes assumed as already familiar, sometimes followed out with nicer accuracy and subtlety.^c Indeed both the *Physica* and the *Metaphysica*, as we read them in Aristotle, would be considered in modern times as belonging alike to the department of *Metaphysics*.

* See Vol. I. ch. viii. pp. 346 seq. of the present work, with the citations in note p. 363 from Prantl and Rassow.

^b *Metaphys.* Γ. i. p. 1003, a. 21: ἔστιν ἐπιστήμη τις ἢ θεωρεῖ τὸ ὄν ἢ ὄν καὶ τὰ τοῦτο ὑπάρχοντα καθ' αὐτό. αὕτη δ' ἐστὶν οὐδεμία τῶν ἐν μέρει λεγομένων ἢ αὐτῇ. οὐδεμία γὰρ τῶν ἄλλων ἐπισκοπεῖ καθόλου περὶ τοῦ ὄντος ἢ ὄν, ἀλλὰ μέρος αὐτοῦ τι ἀποτεμόμεναι, &c.

^c *Metaphys.* Α. vii. p. 1073, a. with Bonitz's Comment. pp. 504-505. *Physica*, I. ix. p. 192, a. 34:

περὶ δὲ τῆς κατὰ τὸ εἶδος ἀρχῆς, πότερον μία ἢ πολλαὶ καὶ τίς ἢ τίνες εἰσὶ, δι' ἀκριβείας τῆς πρώτης φιλοσοφίας ἔργον ἐστὶ διορίσαι, ὥστ' εἰς ἐκείνον τὸν καιρὸν ἀποκείσθω. Compare *Physic.* I. viii. p. 191, b. 29, and Weisse, *Aristoteles Physik*, p. 285.

About the *Metaphysica*, as carrying out and completing the exposition of the *Analytica Posteriora*, see *Metaphys.* Z. xii. p. 1037, b. 8: νῦν δὲ λέγωμεν πρῶτον, ἐφ' ὅσον ἐν τοῖς Ἀναλυτικοῖς περὶ ὁρισμοῦ μὴ εἴρηται (*Analyt. Post.* II. vi. p. 92, a. 32; see note in Vol. I. p. 350 supra).

The primary distinction and classification recognized by Aristotle among Sciences or Cognitions, is, that of (1) Theoretical, (2) Practical, (3) Artistic or Constructive.* Of these three divisions, the second and third alike comprise both intelligence and action, but the two are distinguished from each other by this—that in the Artistic there is always some assignable product which the agency leaves behind independent of itself, whereas in the Practical no such independent result remains,^b but the agency itself, together with the purpose (or intellectual and volitional condition) of the agent, is every thing. The division named Theoretical comprises intelligence alone—intelligence of *principia*, causes and constituent elements. Here again we find a tripartite classification. The highest and most universal of all Theoretical Sciences is recognized by Aristotle as Ontology (First Philosophy, sometimes called by him Theology) which deals with all *Ens* universally *quatenus Ens*, and with the *Prima Moventia*, themselves immoveable, of the entire Kosmos. The two other heads of Theoretical Science are Mathematics and Physics; each of them special and limited, as compared with Ontology. In Physics we scientifically study natural bodies with their motions, changes, and phenomena; bodies in which Form always appears implicated with Matter, and in which the principle of motion or change is immanent and indwelling (*i.e.*, dependent only on the universal *Prima Moventia*, and not impressed from without by a special agency, as in works of human art). In Mathematics, we study immoveable and unchangeable numbers and magnitudes, apart from the bodies to which they belong; not that they can ever be really separated from such bodies,

* *Metaphys. E. i. p. 1025, b. 25.*

^b *Ibid. b. 22.*

but we intellectually abstract them, or consider them apart.^a

Such is Aristotle's tripartite distribution of Theoretical or Contemplative Science. In introducing us to the study of First Philosophy, he begins by clearing up the meaning of the term *Ens*. It is a term of many distinct significations; being neither univocal, nor altogether equivocal, but something intermediate between the two, or multivocal. It is not a generic whole, distributed exhaustively among correlative species marked off by an assignable difference:^b it is an analogical whole, including several genera distinct from each other at the beginning, though all of them branches derivative from one and the same root; all of them connected by some sort of analogy or common relation to that one root, yet not necessarily connected with each other by any direct or special tie.

Of these various significations, he enumerates, as we have already seen, four:—(1) *Ens* which is merely concomitant with, dependent upon, or related to, another *Ens* as terminus; (2) *Ens* in the sense of the True, opposed to *Non-Ens* in the sense of the False; (3) *Ens* according to each of the Ten Categories; (4) *Ens* potentially, as contrasted with *Ens* actually. But among these four heads, the two last only are matters upon which science is attainable, in the opinion of Aristotle. To these two, accordingly, he confines Ontology or First Philosophy. They are the only two that have an objective, self-standing, independent, nature.

^a Metaphys. E. i. p. 1026; K. vii. p. 1064, a. 28-b. 14; M. iii. pp. 1077-1078; Bonitz, Commentar. p. 284.

^b Metaphys. Γ. ii. p. 1003, a. 33-p. 1004, a. 5: τὸ δ' ἐν λέγεται μὲν πολλαχῶς, ἀλλὰ πρὸς ἓν καὶ μίαν τινὰ

φύσιν, καὶ οὐχ ὁμωνύμως—ὑπάρχει γὰρ εὐθὺς γένη ἔχοντα τὸ ἐν καὶ τὸ ἔν.

Compare K. iii. p. 1060, b. 32. See also above, Vol. I. ch. iii. p. 85, of the present work.

That which falls under the first head (*Ens per Accidens*) is essentially indeterminate; and its causes, being alike indeterminate, are out of the reach of science. So also is that which falls under the second head—*Ens tanquam verum*, contrasted with *Non-Ens tanquam falsum*. This has no independent standing, but results from an internal act of the judging or believing mind; combining two elements, or disjoining two elements, in a way conformable to, or non-conformable to, real fact. The true combination or disjunction is a variety of *Ens*; the false combination or disjunction is a variety of *Non-Ens*. This mental act varies both in different individuals, and at different times with the same individual, according to a multitude of causes often unassignable. Accordingly, it does not fall under Ontological Science, nor can we discover any causes or principles determining it.* When Aristotle says that the two first

* Aristot. Met. E. iv. p. 1027, b. 17; Θ. x. p. 1051, b. 2; p. 1052, a. 17-30; K. viii. p. 1065, a. 21.

There remains much obscurity about this meaning of *Ens* (*Ens ως ἀληθές*), even after the Scholia of Alexander (p. 701, a. 10, Sch. Brand.), and the instructive comments of Bonitz, Schwegler, and Brentano (Ueber die Bedeutung des Seienden nach Aristoteles, ch. iii. pp. 21-39).

The foundation of this meaning of *Ens* lies in the legitimate *Antiphrasis*, and the proper division thereof (τὸ δὲ σύνολον περὶ μερισμὸν ἀντιφάσεως, p. 1027, b. 20). It is a first principle (p. 1005, b. 30) that, if one member of the *Antiphrasis* must be affirmed as true, the other must be denied as false. If we fix upon the right combination to affirm, we say *the thing that is*: if we fix upon the wrong combination and affirm it, we say *the thing that is not* (p. 1012, b.

10). "Falsehood and Truth (Aristotle says, E. iv. p. 1027, b. 25) are not in things but in our mental combination; and as regards simple (uncombined) matters and essences, they are not even in our mental combination:" οὐ γὰρ ἐστὶ τὸ ψεῦδος καὶ τὸ ἀληθές ἐν τοῖς πράγμασιν, οἷον τὸ μὲν ἀγαθὸν ἀληθές, τὸ δὲ κακὸν εὐθὺς ψεῦδος, ἀλλ' ἐν διανοίᾳ· περὶ δὲ τὰ ἀπλά καὶ τὰ τί ἐστὶν οὐδ' ἐν τῇ διανοίᾳ. Compare Bonitz (ad Ar. Metaph. Z. iv. p. 1030, a.), p. 310, Comm.

In regard to *cogitabilia*—simple, indivisible, uncompounded—there is no combination or disjunction; therefore, strictly speaking, neither truth nor falsehood (Aristot. De Animâ, III. vi. p. 430, a. 26; also Categor. x. p. 13, b. 10). The intellect either apprehends these simple elements, or it does not apprehend them; there is no *διάνοια* concerned. Not to apprehend them is ignorance, *ἄγνοια*,

heads are out of the reach of science, or not proper subjects of science, he means that their first *principia*, causes, or deepest foundations, cannot be discovered and assigned; for it is in determining these *principia* and causes that true scientific cognition consists.*

There remain, as matter proper for the investigation of First Philosophy, the two last-mentioned heads of *Ens*; viz., *Ens* according to the Ten Categories, and *Ens* potential and actual. But, along with these, Aristotle includes another matter also; viz., the critical examination of the Axioms and highest generalities of syllogistic proof or Demonstration. He announces as the first principle of these Axioms—as the highest and firmest of all Principles—the Maxim of Contradiction:† The same predicate cannot both belong and not belong to the same subject, at the same time and in the same sense; or, You cannot both truly affirm, and truly deny, the same predicate respecting the same subject; or, The same proposition cannot be at once true and false. This Axiom is by nature the beginning or source of all the other Axioms. It stands first in the order of knowledge; and it neither rests upon nor involves any hypothesis.‡

The Syllogism is defined by Aristotle as consisting of premisses and a conclusion: if the two propositions

which sometimes loosely passes under the title of *ψευδος* (Schwegler, Comm. Pt. II., p. 32).

* Metaphys. E. i. p. 1025, b. 3: αἱ ἀρχαὶ καὶ τὰ αἰτία ζητεῖται τῶν ὄντων, ὅλην δ' ὅτι ἢ ὄντα.—ὅλως δὲ πᾶσα ἐπιστήμη διανοητικὴ ἢ μετέχουσα τι διανοίας περὶ αἰτίας καὶ ἀρχάς ἐστιν ἢ ἀκριβεστέρας ἢ ἀπλουστεράς.

Compare Metaph. K. vii. p. 1063, b. 36; p. 1065, a. 8-26. Analyt. Post. I. ii. p. 71, b. 9.

† Metaph. Γ. iii. p. 1005, b. 7, 17,

22, 34: αὕτη δὲ πασῶν ἐστὶ βεβαιω-
τάτη τῶν ἀρχῶν—φύσει γὰρ ἀρχὴ καὶ
τῶν ἄλλων ἀξιωματῶν αὕτη πάντων.—
p. 1011, b. 13: βεβαιωτάτη δὲ ὁξ α
πασῶν τὸ μὴ εἶναι ἀληθεῖς ἅμα τὰς
ἀντικειμένους φάσεις—(He here applies
the term *δόξα* to designate this funda-
mental maxim. This deserves notice,
because of the antithesis, common
with him elsewhere, between *δόξα*
and *ἐπιστήμη*).

‡ Metaph. Γ. iii. p. 1005, b. 13-14: γνωριμωτάτην—ἀνυπόθετον.

called premisses be granted as true, a third as conclusion must for that reason be granted as true also.* The truth of the conclusion is affirmed conditionally on the truth of the premisses; and the rules of Syllogism set out those combinations of propositions in which such affirmation may be made legitimately. The rules of the Syllogism being thus the rules for such conditional affirmation, the Principle or Axiom thereof enunciates in the most general terms what is implied in all those rules, as essential to their validity. And, since the syllogistic or deductive process is applicable without exception to every variety of the *Scibile*, Aristotle considers the Axioms or Principles thereof to come under the investigation of Ontology or First Philosophy. Thus it is, that he introduces us to the Maxim of Contradiction, and its supplement or correlative, the Maxim of the Excluded Middle.

His vindication of these Axioms is very illustrative of the philosophy of his day. It cannot be too often impressed that he was the first either to formulate the precepts, or to ascend to the theory, of deductive reasoning; that he was the first to mark by appropriate terms the most important logical distinctions and characteristic attributes of propositions; that before his time, there was abundance of acute dialectic, but no attempt to set forth any critical scheme whereby the conclusions of such dialectic might be tested. Anterior to Sokrates, the cast of Grecian philosophy had been altogether either theological, or poetical, or physical, or at least some fusion of these three varieties into one. Sokrates was the first who broke ground for Logic—for testing the difference between good and bad ratiocination. He did this by enquiry as to the definition of general

* Analyt. Prior. I. i. p. 24, b. 18-20, et alib.

terms,^a and by dialectical exposure of the ignorance generally prevalent among those who familiarly used them. Plato in his Sokratic dialogues followed in the same negative track; opening up many instructive points of view respecting the erroneous tendencies by which reasoners were misled, but not attempting any positive systematic analysis, nor propounding any intelligible scheme of his own for correction or avoidance of the like. If Sokrates and Plato, both of them active in exposing ratiocinative error and confusion, stopped short of any wide logical theory, still less were the physical philosophers likely to supply that deficiency. Aristotle tells us that several of them controverted the Maxim of Contradiction.^b Herakleitus and his followers maintained the negative of it, distinctly and emphatically;^c while the disciples of Parmenides, though less pronounced in their negative, could not have admitted it as universally true. Even Plato must be reckoned among those who, probably without having clearly stated to himself the Maxim in its universal terms, declared doctrines quite incompatible with it: the Platonic Parmenides affords a conspicuous example of contradictory conclusions deduced by elaborate reasoning and declared to be both of them firmly established.^d Moreover, in the Sophistes,^e Plato explains the negative proposition as expressing what is different

^a Aristot. Metaph. A. vi. p. 987, b. 1: Σωκράτους δὲ περὶ μὲν τὰ ἡθικά πραγματευομένου, περὶ δὲ τῆς ὅλης φύσεως οὐθέν, ἐν μέντοι τούτοις τὸ καθόλου ζητούντος, καὶ περὶ ὁρισμῶν ἐπιστήσαντος πρῶτον τὴν διάνοιαν.

^b Ibid. Γ. iv. p. 1005, b. 35: εἰσὶ δὲ τινες, οἳ, καθάπερ εἵπομεν, αὐτοὶ τε ἐνδέχασθαι φασὶ τὸ αὐτὸ εἶναι καὶ μὴ εἶναι, καὶ ὑπολαμβάνειν οὕτως. χρῶνται δὲ τῷ λόγῳ τούτῳ πολλοὶ

καὶ τῶν περὶ φύσεως.

^c Ibid. iii. p. 1005, b. 25; v. p. 1010, a. 13; vi. p. 1011, a. 24.

^d Plato, Republic. v. p. 479, A.; vii. p. 538, E. Compare also the conclusion of the Platonic Parmenides, and the elaborate dialectic or antinomies by which the contradictions involved in it are proved.

^e Plato, Sophistes, p. 257, B.

from that which is denied, but nothing beyond; an explanation which, if admitted, would set aside the Maxim of Contradiction as invalid.

While Aristotle mentions these various dissentients, and especially Herakleitus, he seems to imagine that they were not really in earnest* in their dissent. Yet he nevertheless goes at length into the case against them, as well as against others, who agreed with him in affirming the Maxim, but who undertook also to demonstrate it. Any such demonstration Aristotle declares to be impossible. The Maxim is assumed in all demonstrations; unless you grant it, no demonstration is valid; but it cannot be itself demonstrated. He had already laid down in the *Analytica* that the premisses for demonstration could not be carried back indefinitely, and that the attempt so to carry them back was unphilosophical.^b There must be some primary, undemonstrable truths; and the Maxim of Contradiction he ranks among the first. Still, though in attempting any formal demonstration of the Maxim you cannot avoid assuming the Maxim itself and thus falling into *Petitio Principii*, Aristotle contends that you can demonstrate it in the way of refutation,^c relatively to a given opponent, provided such opponent will not content himself with simply denying it, but will besides advance some affirmative thesis of his own, as a truth in which he

* Aristot. *Metaph.* Γ. iii. p. 1005, b. 26; K. v. p. 1062, a. 32. Here Aristotle intimates that Herakleitus may have asserted what he did not believe; though we find him in another place citing Herakleitus as an example of those who adhered as obstinately to their opinions as other persons adhered to demonstrated truth (*Ethic. Nik.* VII. v. p. 1146, b. 30.).

^b Aristot. *Metaph.* Γ. iv. p. 1006,

a. 5: ἀξιούσι δὴ καὶ τοῦτο ἀποδεικνύναι τινὲς δι' ἀπαιδευσίαν· ἔστι γὰρ ἀπαιδευσία τὸ μὴ γινώσκειν τίνων δεῖ ζητεῖν ἀπόδειξιν καὶ τίνων οὐ δεῖ.

^c Ibid. a. 11: ἔστι δ' ἀποδείξαι ἐλεγκτικῶς καὶ περὶ τούτου ὅτι ἀδύνατον, ἂν μόνον τι λέγῃ ὁ ἀμφισβητῶν.—K. v. p. 1062, a. 2: καὶ περὶ τῶν τοιούτων ἀπλῶς μὲν οὐκ ἔστιν ἀπόδειξις, πρὸς τόνδε δ' ἔστιν.—p. 1062, a. 30.

believes; or provided he will even grant the fixed meaning of words, defining them in a manner significant alike to himself and to others,—each word to have either one fixed meaning, or a limited number of different meanings, clear and well defined.^a It is impossible for two persons to converse, unless each understands the other. A word which conveys to the mind not one meaning, but a multitude of unconnected meanings, is for all useful purposes unmeaning.^b If, therefore, the opponent once binds himself to an affirmative definition of any word, this definition may be truly predicated of the *definitum* as subject; while he must be considered as interdicting himself from predicating of the same subject the negative of that definition. But when you ask for the definition, your opponent must answer the question directly and *bonâ fide*. He must not enlarge his definition so as to include both the affirmative and negative of the same proposition; nor must he tack on to the real essence (declared in the definition) a multitude of unessential attributes. If he answers in this confused and perplexing manner, he must be treated as not answering at all, and as rendering philosophical discussion impossible.^c Such a mode of speaking goes to disallow any ultimate essence or determinate subject, and shuts out all predication; for there cannot be an infinite regress of predicates upon predicates, and accidents upon accidents, without arriving at an ultimate substratum—Subject or Essence.^d If, wherever

^a Aristot. Metaph. Γ. iv. p. 1006, a. 18-34. διαφέρει δ' οὐθὲν οὐδ' εἰ πλείω τις φασὶν σημαίνειν, μόνον δὲ ὁρισμένον.—K. v. p. 1062, a. 12.

^b Ibid. Γ. iv. p. 1006, b. 7: τὸ γὰρ μὴ εἶναι τι σημαίνειν οὐθὲν σημαίνειν ἐστίν, μὴ σημαίνοντων δὲ τῶν ὀνομάτων ἀνῆρηται τὸ διαλέγεσθαι πρὸς ἀλλήλους, κατὰ δὲ τὴν ἀλήθειαν καὶ

πρὸς αὐτόν· οὐθὲν γὰρ ἐνδέχεται νοεῖν μὴ νοοῦντα εἶναι.—K. v. p. 1062, a. 20.

^c Ibid. Γ. iv. p. 1006, b. 30-p. 1007, a. 20. συμβαίνει τὸ λεχθέν, ἂν ἀποκρίνεται τὸ ἐρωτώμενον. εἰ δὲ προστιθῇ ἐρωτῶντος ἀπλῶς καὶ τὰς ἀποφάσεις, οὐκ ἀποκρίνεται τὸ ἐρωτώμενον.—εἰ δὲ τοῦτο ποιῇ, οὐ διαλέγεται.

^d Ibid. p. 1007, a. 20-b. 19: ὅπως

you can truly affirm a predicate of any subject, you can also truly deny the same predicate of the same subject, it is manifest that all subjects are one: there is nothing to discriminate man, horse, ship, wall, &c. from each other; every one speaks truth, and every one at the same time speaks falsehood; a man believes and disbelieves the same thing at the same time; or he neither believes nor disbelieves, and then his mind is blank, like a vegetable.*

The man who professes this doctrine, however (continues Aristotle^b), shows plainly by his conduct that his mind is not thus blank; that, in respect of the contradictory alternative, he does not believe either both sides or neither side, but believes one and disbelieves the other. When he feels hungry, and seeks what he knows to be palatable and wholesome, he avoids what he knows to be nasty and poisonous. He knows what is to be found in the market-place, and goes there to get it; he keeps clear of falling into a well or walking into the sea; he does not mistake a horse for a man. He may often find himself mistaken; but he shows by his conduct that he believes certain subjects to possess certain definite attributes, and not to possess others. Though we do not reach infallible truth, we obtain an approach to it, sometimes nearer, sometimes more remote; and we thus escape the extreme doctrine which forbids all definite affirmation.^c

δ' ἀναιρούσιν οἱ τοῦτο λέγοντες οὐσίαν καὶ τὸ τί ἦν εἶναι.—εἰ δὲ πάντα κατὰ συμβεβηκὸς λέγεται, οὐθὲν ἔσται πρῶτον τὸ καθ' οὗ, εἰ αἰὲν τὸ συμβεβηκὸς καθ' ὑποκειμένου τινὸς σημαίνει τὴν κατηγορίαν· ἀνάγκη ἄρα εἰς ἀπειρον ἵέναι· ἀλλ' ἀδύνατον.

* Aristot. Met. Γ. iv. p. 1008, a. 18-b. 12: εἰ δὲ ὁμοίως καὶ ὅσα ἀποφῆσαι φάναι ἀνάγκη—πάντα δ' ἂν εἴη

ἔν—οὐθὲν διοίσει ἕτερον ἑτέρου—εἰ δὲ μηθὲν ὑπολαμβάνει ἀλλ' ὁμοίως οἴεται καὶ οὐκ οἴεται, τί ἂν διαφερόντως ἔχοι τῶν φυτῶν; K. v. p. 1062, a. 28.

^b Ibid. Γ. iv. p. 1008, b. 12-31; K. vi. p. 1063, a. 30.

^c Ibid. Γ. iv. p. 1008, b. 36: εἰ οὖν τὸ μᾶλλον ἐγγύτερον, εἴη γε ἂν τι ἀληθές οὐ ἐγγύτερον τὸ μᾶλλον ἀληθές· κἂν εἰ μή ἐστίν, ἀλλ' ἤδη γέ τι ἐστὶ βεβαιώτε-

It is in this manner that Aristotle, vindicating the Maxims of Contradiction and of Excluded Middle as the highest *principia* of syllogistic reasoning, disposes of the two contemporaneous dogmas that were most directly incompatible with these Maxims:—(1) The dogma of Herakleitus, who denied all duration or permanence of subject, recognizing nothing but perpetual process, flux, or change, each successive moment of which involved destruction and generation implicated with each other: *Is* and *is not* are both alike and conjointly true, while neither is true separately, to the exclusion of the other;* (2) The dogma of Anaxagoras, who did not deny fixity or permanence of subject, but held that everything was mixed up with everything; that every subject had an infinite assemblage of contrary predicates, so that neither of them could be separately affirmed or separately denied: The truth lies in a third alternative or middle, between affirmation and denial.^b

Having thus refuted these dogmas to his own satis-

ρον καὶ ἀληθινώτερον, καὶ τοῦ λόγου ἀππληλαγμένοι ἂν εἶμεν τοῦ ἀκράτου καὶ κωλύοντός τι τῇ διανοίᾳ ὀρίσσαι.

* Aristot. Met. A. vi. p. 987, a. 34; Γ. v. p. 1010, a. 12: Κράτυλος—ὅς τὸ τελευταῖον οὐθέν φέτο δεῖν λέγειν ἀλλὰ τὸν δάκτυλον ἐκίνει μόνον, καὶ Ἡρακλείτῳ ἐπετίμα εἰπόντι ὅτι δις τῷ αὐτῷ ποτάμῳ οὐκ ἔστιν ἐμβῆναι· αὐτὸς γὰρ φέτο οὐδ' ἀπάξ. Herakleitus adopted as his one *fundamentum* Fire or Heat, as being the principle of mobility or change: χρώνται γὰρ ὡς κινητικὴν ἔχοντι τῷ πυρὶ τὴν φύσιν—Metaph. A. iii. p. 984, b. 5. Ibid. K. v. p. 1062, a. 31-b. 10; K. x. p. 1067, a. 5; M. iv. p. 1078, b. 15.

^b Ibid. K. vi. p. 1063, b. 25; A. viii. p. 989, a. 31-b. 16. ὅτε γὰρ

οὐθέν ἦν ἀποκεκριμένον, δῆλον ὡς οὐθέν ἦν ἀληθές εἰπεῖν κατὰ τῆς οὐσίας ἐκείνης, λέγω δ' οἷον ὅτι οὔτε λευκὸν οὔτε μέλαν ἢ φαῖον ἢ ἄλλο χρώμα, ἀλλ' ἄχρων ἦν ἐξ ἀνάγκης· ὁμοίως δὲ καὶ ἄχυμον τῷ αὐτῷ λόγῳ τοῦτ' αὖ, οὐδὲ ἄλλο τῶν ὁμοίων οὐθέν· οὔτε γὰρ ποιόν τι οἶόν τε αὐτὸ εἶναι οὔτε ποσὸν οὔτε τί.—Γ. iv. p. 1007, b. 25: καὶ γίγνεται δὴ τὸ τοῦ Ἀναξαγόρου, ὁμοῦ πάντα χρήματα ὥστε μηθέν ἀληθῶς ὑπάρχειν.—Γ. viii. p. 1012, a. 24: εἵκοι δ' ὁ μὲν Ἡρακλείτου λόγος, λέγων πάντα εἶναι καὶ μὴ εἶναι, ἅπαντα ἀληθῆ ποιεῖν, ὁ δ' Ἀναξαγόρου εἶναι τι μεταξὺ τῆς ἀντιφάσεως, ὥστε πάντα ψευδῆ· ὅταν γὰρ μιχθῇ, οὔτ' ἀγαθὸν οὔτ' οὐκ ἀγαθὸν τὸ μίγμα, ὥστ' οὐθέν εἰπεῖν ἀληθές.

faction, Aristotle proceeds to impugn a third doctrine which he declares to be analogous to these two and to be equally in conflict with the two syllogistic *principia* which he is undertaking to vindicate. This third doctrine is the "*Homo Mensura*" of Protagoras: Man is the measure of all things—the measure of things existent as well as of things non-existent: To each individual that is true or false which he believes to be such, and for as long as he believes it. Aristotle contends that this doctrine is homogeneous with those of Herakleitus and Anaxagoras, and must stand or fall along with them; all three being alike adverse to the Maxim of Contradiction.^a Herein he follows partially the example of Plato, who (in his *Theætétus*^b), though not formally enunciating the Maxim of Contradiction, had declared the tenets of Protagoras to be coincident with or analogous to those of Herakleitus, and had impugned both one and the other by the same line of arguments. Protagoras agreed with Herakleitus (so Plato and Aristotle tell us) in declaring both affirmative and negative (in the contradictory alternative) to be at once and alike true; for he maintained that what any person believed was true, and that what any person disbelieved was false. Accordingly, since opinions altogether opposite and contradictory are held by different persons or by the same person at different times, both the affirmative and the negative of every *Antiphrasis* must be held as true alike;^c in other words, all affirmations and all negations were at once true and false. Such co-existence or implication of contradictions is the main doctrine of Herakleitus.

^a Aristot. Met. Γ. v. p. 1009, a. 6: *ἔστι δ' ἀπὸ τῆς αὐτῆς δόξης καὶ ὁ Πρωταγόρου λόγος, καὶ ἀνάγκη ὁμοίως ἄμφω αὐτοὺς ἢ εἶναι ἢ μὴ εἶναι.*

^b Aristotle refers here to Plato by

name, Metaphys. Γ. v. p. 1010, b. 12.

^c Ibid. p. 1009, a. 8-20. *ἀνάγκη πάντα ἅμα ἀληθὴ καὶ ψευδῆ εἶναι.*—p. 1011, a. 30.

I have already in another work,* while analysing the Platonic dialogues *Theætétus* and *Kratylus*, criticized at some length the doctrine here laid down by Plato and Aristotle. I have endeavoured to show that the capital tenet of Protagoras is essentially distinct from the other tenets with which these two philosophers would identify it: distinct both from the dogma of Herakleitus, That everything is in unceasing flux and process, each particular moment thereof being an implication of contradictions both alike true; and distinct also from the other dogma held by others, That all cognition is sensible perception. The Protagorean tenet "*Homo Mensura*" is something essentially distinct from either of these two; though possibly Protagoras himself may have held the second of the two, besides his own. His tenet is nothing more than a clear and general declaration of the principle of

* 'Plato and the Other Companions of Sokrates,' Vol. II. c. xxvi. pp. 325-363: "The Protagorean doctrine—Man is the measure of all things—is simply the presentation in complete view of a common fact; uncovering an aspect of it which the received phraseology hides. Truth and Falsehood have reference to some believing Subject; and the words have no meaning except in that relation. Protagoras brings to view the subjective side of the same complex fact, of which Truth and Falsehood denote the objective side. He refuses to admit the object absolute—the pretended *thing in itself*—Truth without a believer. His doctrine maintains the indefeasible and necessary involution of the percipient mind in every perception; of the concipient mind in every conception; of the cognizant mind in every cognition. Farther

Protagoras acknowledges many distinct believing or knowing Subjects; and affirms that every Object known must be relative to (or in his language *measured by*) the knowing Subject: that every *cognitum* must have its *cognoscens*, and every *cognoscibile* its *cognitionis capax*; that the words have no meaning unless this be supposed; that these two names designate two opposite poles or aspects of the indivisible fact of cognition—actual or potential—not two factors, which are in themselves separate or separable, and which come together to make a compound product. A man cannot in any case get clear of or discard his own mind as Subject. Self is necessarily omnipresent, concerned in every moment of consciousness, &c." Compare also c. xxiv. p. 261.

universal Relativity. True belief and affirmation have no meaning except in relation to some believer, real or supposed ; true disbelief and negation have no meaning except in relation to some disbeliever, real or supposed. When a man affirms any proposition as true, he affirms only what he (perhaps with some other persons also) believes to be true, while others may perhaps disbelieve it as falsehood. Object and Subject are inseparably implicated : we may separate them by abstraction, and reason about each apart from the other ; but, as reality, they exist only locked up one with the other.

That such is and always has been the state of the fact, in regard to truth and falsehood, belief and disbelief, is matter of notoriety : Protagoras not only accepts it as a fact, but formulates it as a theory. Instead of declaring that what he (or the oracle which he consults and follows) believes to be true, is absolute truth, while that which others believe, is truth relatively to them,—he lowers his own pretensions to a level with theirs. He professes to be a measure of truth only for himself, and for such as may be satisfied with the reasons that satisfy him. Aristotle complains that this theory discourages the search for truth as hopeless, not less than the chase after flying birds.* But, however serious such discouragement may be, we do not escape the real difficulty of the search by setting up an abstract idol and calling it Absolute Truth, without either relativity or referee ; while, if we enter, as sincere and *bonâ fide* enquirers, on the search for reasoned truth or philosophy, we shall find ourselves not departing from the Protagorean canon, but involuntarily conforming to it. Aristotle, after having de-

* Aristot. *Metaph.* Γ. v. p. 1009, b. 38.

clared that the Maxim of Contradiction was true beyond the possibility of deception,^a but yet that there were several eminent philosophers who disallowed it, is forced to produce the best reasons in his power to remove their doubts and bring them round to his opinion. His reasons must be such as to satisfy not his own mind only, but the minds of opponents and indifferent auditors as referees. This is an appeal to other men, as judges each for himself and in his own case: it is a tacit recognition of the autonomy of each individual enquirer as a measure of truth to himself. In other words, it is a recognition of the Protagorean canon.

We know little about the opinions of Protagoras; but there was nothing in this canon necessarily at variance either with the Maxim of Contradiction or with that of Excluded Middle. Both Aristotle and Plato would have us believe that Protagoras was bound by his canon to declare every opinion to be alike false and true, because every opinion was believed by some and disbelieved by others.^b But herein they misstate his theory. He did not declare any thing to be *absolutely* true, or to be *absolutely* false. Truth and Falsehood were considered by him as always relative to some referee, and he recognized no universal or infallible referee. In his theory the necessity of *some* referee was distinctly enunciated, instead of being put out of sight under an ellipsis, as in the received theories and practice. And this is exactly what Plato and Aristotle omit, when they refute him. He proclaimed that each man was a measure for himself alone, and that every

^a Aristot. Metaph. Γ. iii. p. 1005, b. 11: βεβαιωτάτη δ' ἀρχὴ πασῶν, περὶ ἣν διαψευσθῆναι ἀδύνατον.

^b Plato, Theatét. pp. 171-179. Aristot. Met. Γ. iv. p. 1007, b. 21:

εἰ κατὰ παντός τι ἢ καταφῆσαι ἢ ἀποφῆσαι ἐνδέχεται, καθάπερ ἀνάγκη τοῖς τὸν Πρωταγόρου λέγουσι λόγον. Compare v. p. 1009, a. 6; viii. p. 1012, b. 15.

opinion was true *to the believer*, false *to the disbeliever*; while they criticize him as if he had said—Every opinion is alike true and false; thus leaving out the very qualification which forms the characteristic feature of his theory. They commit that fallacy which Plato shows up in the Euthydêmus, and which Aristotle^a numbers in his list of *Fallaciæ Extra Dictionem*, imputing it as a vice to the Sophists: they slide *à dicto secundum quid ad dictum simpliciter*. And it is remarkable that Aristotle, in one portion of his argument against “*Homo Mensura*,” expressly admonishes the Protagoreans that they must take care to adhere constantly to this qualified mode of enunciation;^b that they must not talk of apparent truth generally, but of truth as it appears *to themselves* or *to some other persons*, now or at a different time. Protagoras hardly needed such an admonition to keep to what is the key-note and characteristic peculiarity of his own theory; since it is only by suppressing this peculiarity that his opponents make the theory seem absurd. He would by no means have disclaimed that consequence of his theory, which Aristotle urges against it as an irrefragable objection; viz., that it makes every thing relative, and recognizes nothing as absolute. This is perfectly true, and constitutes its merit in the eyes of its supporters.

Another argument of Aristotle^c against the Protagorean “*Homo Mensura*”—That it implies in every

^a Aristot. Soph. El. p. 167, a. 3; Rhetoric. II. xxiv. p. 1402, a. 2-15. ὥσπερ καὶ ἐπὶ τῶν ἐριστικῶν τὸ κατὰ τι καὶ πρὸς τι καὶ πῇ οὐ προστιθέμενα ποιεῖ τὴν συκοφαντίαν.

^b Aristot. Metaph. Γ. vi. p. 1011, a. 21: διὸ καὶ φυλακτέον τοῖς τὴν βίαν ἐν τῷ λόγῳ ζητοῦσιν, ἅμα δὲ καὶ

ὑπέχειν λόγον ἀξιοῦσιν, ὅτι οὐ τὸ φαινόμενον ἔστιν, ἀλλὰ τὸ φαινόμενον ᾧ φαίνεται καὶ ὅτε φαίνεται καὶ ἥ καὶ ὥς.—b. 1: ἀλλ' ἴσως διὰ τοῦτ' ἀνάγκη λέγειν τοῖς μὴ δι' ἀπορίαν ἀλλὰ λόγου χάριν λέγουσιν, ὅτι οὐκ ἔστιν ἀληθεὶς τοῦτο, ἀλλὰ τοῦτω ἀληθές.

^c Ibid. v. p. 1010, b. 11.

affirming Subject an equal authority and equal title to credence, as compared with every other affirming Subject—I have already endeavoured to combat in my review of the Platonic Theætétus, where the same argument appears fully developed. The antithesis between Plato and Aristotle on one side, and Protagoras on the other, is indeed simply that between Absolute and Relative. The Protagorean doctrine is quite distinct from the other doctrines with which they jumble it together—from those of Herakleitus and Anaxagoras, and from the theory that Knowledge is sensible perception. The real opponents of the Maxim of Contradiction were Herakleitus, Anaxagoras, Parmenides, and Plato himself as represented in some of his dialogues, especially the Parmenides, Timæus, Republic, Sophistes. Each of these philosophers adopted a First Philosophy different from the others; but each also adopted one completely different from that of Aristotle, and not reconcileable with his logical canons. None of them admitted determinate and definable attributes belonging to determinate particular subjects, each with a certain measure of durability.

Now the common speech of mankind throughout the Hellenic world was founded on the assumption of such fixed subjects and predicates. Those who wanted information for practical guidance or security, asked for it in this form; those who desired to be understood by others, and to determine the actions of others, adopted the like mode of speech. Information was given through significant propositions, which the questioner sought to obtain, and which the answer, if cognizant, enunciated: *e.g.*, Theætétus is sitting down^a—to repeat the minimum or skeleton of a proposition as given by

^a Plato, Sophistes, pp. 262-263.

Plato, requiring both subject and predicate in proper combination, to convey the meaning. Now the logical analysis, and the syllogistic precepts of Aristotle,—as well as his rhetorical and dialectical suggestions for persuading, for refuting, or for avoiding refutation—are all based upon the practice of common speech. In conversing (he says) it is impossible to produce and exhibit the actual objects signified; the speaker must be content with enunciating, instead thereof, the name significant of each.^a The first beginning of rhetorical diction is, to speak good Greek:^b the rhetor and the dialectician must dwell upon words, propositions, and opinions, not peculiar to such as have received special teaching, but common to the many and employed in familiar conversation; the auditors, to whom they address themselves, are assumed to be commonplace men, of fair average intelligence, but nothing beyond.^c Thus much of acquirement is imbibed by almost every one as he grows up, from the ordinary intercourse of society. The men of special instruction begin with it, as others do; but they also superadd other cognitions or accomplishments derived from peculiar teachers. Universally—both in the interior of the family, amidst

^a Aristot. Soph. El. p. 165, a. 5 : *ἐπεὶ γὰρ οὐκ ἔστιν αὐτὰ τὰ πράγματα διαλέγεσθαι φέροντας, ἀλλὰ τοῖς ὀνόμασιν ἀντὶ τῶν πραγμάτων χρώμεθα συμβόλοις.* a. 25 : *διδασκαλίας γὰρ ἔστιν ὁ κατὰ τὴν ἐπιστήμην λόγος, τοῦτο δὲ ἀδύνατον, ἀλλ' ἀνάγκη διὰ τῶν κοινῶν ποιείσθαι τὰς πίστεις καὶ τοὺς λόγους, ὥσπερ καὶ ἐν τοῖς Τοπικοῖς ἐλέγομεν περὶ τῆς πρὸς τοὺς πολλοὺς ἐντεύξεως.*—p. 1357.

^b Aristot. Rhet. III. v. p. 1407, a. 19 : *ἔστι δ' ἀρχὴ τῆς λέξεως τὸ Ἑλληνίζειν.* a. 1 : *ἔστι δὲ τὸ ἔργον αὐτῆς περὶ τε τοιούτων περὶ ὧν βουλευόμεθα καὶ τέχνας μὴ ἔχοντες, καὶ ἐν τοῖς τοιούτοις ἀκροαταῖς οἱ οὐ δύνανται διὰ πολλῶν συνορᾶν οὐδὲ λογίζεσθαι πόρρωθεν.*—p. 1357, a. 11 : *ὁ γὰρ κριτής ὑποκείται εἶναι ἀπλούς.* Compare Topica, I. ii. p. 101, a. 26-36; Soph. El. xi. p. 172, a. 30.

^c Aristot. Rhet. I. i. p. 1354, a. 1 : *ἡ ῥητορικὴ ἀντίστροφός ἐστι τῇ διαλεκτικῇ· ἀμφοτέραι γὰρ περὶ τοιούτων τινῶν εἰσὶν ἂ κοινὰ τρόπον τινὰ ἀπάντων ἐστὶ γνωρίζειν καὶ οὐδεμιᾶς ἐπιστήμης ἀφωρισμένης· διὸ καὶ πάντες τρόπον τινὰ μετέχουσιν ἀμφοῖν.*—p. 1355,

the unscientific multitude, and by the cultivated few—habitual speech was carried on through terms assuming fixed subjects and predicates. It was this recognized process, in its two varieties of Analytic and Dialectic, which Aristotle embraced in his logical theory, and to which he also adapted his First Philosophy.

But the First Philosophy that preceded his, had not been so adapted. The Greek philosophers, who flourished before dialectical discussion had become active, during the interval between Thales and Sokrates, considered Philosophy as one whole—*rerum divinarum et humanarum scientia*—destined to render Nature or the Kosmos more or less intelligible. They took up in the gross all those vast problems, which the religious or mythological poets had embodied in divine genealogies and had ascribed to superhuman personal agencies.

Thales and his immediate successors (like their predecessors the poets) accommodated their hypotheses to intellectual impulses and aspirations of their own; with little anxiety about giving satisfaction to others,^a still less about avoiding inconsistencies or meeting objections. Each of them fastened upon some one grand and imposing generalization (set forth often in verse) which he stretched as far as it would go by various comparisons and illustrations, but without any attention or deference to adverse facts or reasonings. Provided that his general point of view was impressive to the imagination,^b as the old religious scheme of per-

^a Aristot. Met. B. iv. p. 1000, a. 9: οἱ μὲν οὖν περὶ Ἑσίοδον καὶ πάντες ὅσοι θεόλογοι μόνον ἐφρόντισαν τοῦ πιθανοῦ τοῦ πρὸς αὐτούς, ἡμῶν δ' ὠλιγόωρησαν—καὶ γὰρ ὅνπερ οἰηθεῖη λέγειν ἂν τις μάλιστα ὁμολογουμένως αὐτῷ, Ἐμπεδοκλῆς, καὶ οὐτὸς ταῦτον

πίπονθεν.—Metaph. N. iv. p. 1091, b. 1-15.

^b This is strikingly expressed by a phrase of Aristotle about the Platonic theory, Metaph. N. iii. p. 1090, a. 35: οἱ δὲ χωριστὸν ποιῶντες, ὅτι ἐπὶ τῶν αἰσθητῶν οὐκ ἔσται τὰ ἀξιώματα, ἀλη-

sonal agencies was to the vulgar, he did not concern himself about the conditions of proof or disproof. The data of experience were altogether falsified (as by the Pythagoreans)^a in order to accommodate them to the theory; or were set aside as deceptive and inexplicable from the theory (as by both Parmenides and Herakleitus).^b

But these vague hypotheses became subjected to a new scrutiny, when the dialectical age of Zeno and Sokrates supervened. Opponents of Parmenides impugned his theory of *Ens Unum Continuum Immobile*, as leading to absurdities; while his disciple Zeno replied, not by any attempt to disprove such allegations but, by showing that the counter-theory of *Entia Plura Discontinua Moventia*, or *Mutabilia*, involved consequences yet more absurd.^c In the acute dialectical warfare, to which the old theories thus stood exposed, the means of attack much surpassed those of defence; moreover, the partisans of Herakleitus despised all coherent argumentation, confining themselves to obscure oracular aphorisms and multiplied metaphors.^d In point of fact, no suitable language could be found, consistently with common speech or common experience, for expanding in detail either the Herakleitean^e or the Parmenidean

θῆ δὲ τὰ λεγόμενα καὶ σαίνει τὴν ψυχὴν, εἶναί τε ὑπολαμβάνουσι καὶ χωριστὰ εἶναι.

^a Metaph. N. iii. p. 1090, a. 34: εἰκόασι περὶ ἄλλου οὐράνου λέγειν καὶ σωμάτων ἄλλ' οὐ τῶν αἰσθητῶν.—Metaph. A. v. p. 986, a. 5; and De Cælo, II. xiii. p. 293, a. 25.

^b Physic. I. ii.-iii. pp. 185-186.

^c Plato, Parmenid. p. 128, D.

^d Plato, Theætét. p. 179, E: περὶ τούτων τῶν Ἡρακλειτείων, — τὸ ἐπιμεῖναι ἐπὶ λόγῳ καὶ ἐρωτήματι καὶ ἡσυχίῳ ἐν μέρει ἀποκρίνασθαι καὶ

ἐρέσθαι ἤττον αὐτοῖς ἔτι ἢ τὸ μηδέν—ὥσπερ ἐκ φαρίτρας ῥηματίσκια αἰνιγματώδη ἀνασπῶντες ἀποτοξεύουσι, κἀν τούτου ζητῆς λόγον λαβεῖν, τί εἴρηκεν, ἐτέρῳ πεπλήξει καὶνῶς μετωνομασμένῳ, περὶ αὐτῶν δὲ οὐδέποτε οὐδὲν πρὸς οὐδένα αὐτῶν.

^e Ibid. p. 183, B: ἀλλὰ τιν' ἄλλην φωνὴν θετέον τοῖς τὸν λόγον τοῦτον λέγουσιν, ὥς νῦν γε πρὸς τὴν αὐτῶν ὑπόθεσιν οὐκ ἔχουσι ῥήματα, εἰ μὴ ἄρα τὸ οὐδ' ὅπως· μάλιστα δ' οὕτως ἂν αὐτοῖς ἀρμῶντοι, ἀπειρον λεγόμενον.

Plato applies this remark to the

theory; the former suppressing all duration and recognizing nothing but events—a perpetual stream of *Fientia* or interchange of *Ens* with *Non-Ens*; the latter discarding *Non-Ens* as unmeaning, and recognizing no real events or successions, but only *Ens Unum* perpetually lasting and unchangeable. The other physical hypotheses, broached by Pythagoras, Empedokles, Anaxagoras, and Demokritus, each altogether discordant with the others, were alike imposing in their general enunciation and promise, alike insufficient when applied to common experience and detail.

But the great development of Dialectic during the Sokratic age, together with the new applications made of it by Sokrates and the unrivalled acuteness with which he wielded it, altered materially the position of these physical theories. Sokrates was not ignorant of them;^a but he discouraged such studies, and turned attention to other topics. He passed his whole life in public and in indiscriminate conversation with every one. He deprecated astronomy and physics as unbecoming attempts to pry into the secrets of the gods; who administered the general affairs of the Kosmos according to their own pleasure, and granted only, through the medium of prophecy or oracles, such special revelations as they thought fit. In his own discussions Sokrates dwelt only on matters of familiar conversation and experience—social, ethical, political, &c., such as were in every one's mouth, among the daily groups of the market-place. These he declared to be the truly *human* topics^b—the proper study of man-

theory of Protagoras; but the remark belongs properly to that of Herakleitus.

^a Xenophon, Mem. IV. vii. 5: καίτοι οὐδὲ τούτων γε ἀνήκοος ἦν.

^b Ibid. I. i. 12-16: καὶ πρῶτον μὲν

αὐτῶν ἐσκόπει πότερὰ ποτε νομίσαν-
τες ἰκανῶς ἤδη τὰνθρώπεια εἰδέναι
ἔρχονται ἐπὶ τὸ περὶ τῶν τοιούτων
φροντίζειν, ἢ τὰ μὲν ἀνθρώπεια
παρέντες, τὰ δὲ δαίμονια σκοποῦντες,

kind—upon which it was disgraceful to be ignorant, or to form untrue and inconsistent judgments. He found, moreover, that upon these topics no one supposed himself to be ignorant, or to require teaching. Every one gave confident opinions, derived from intercourse with society, embodied in the familiar words of the language, and imbibed almost unconsciously along with the meaning of these words. Now Sokrates not only disclaimed all purpose of teaching, but made ostentatious profession of his own ignorance. His practice was to ask information from others who professed to know; and with this view, to question them about the import of vulgar words with the social convictions contained in them.^a To the answers given he applied an acute cross-examination, which seldom failed to detect so much inconsistency and contradiction as to cover the respondent with shame, and to make him sensible that he was profoundly ignorant of matters which he had believed himself to know well. Sokrates declared, in his last speech before condemnation by the Athenian Dikasts, that such false persuasion of knowledge, combined with real ignorance, was universal among mankind; and that the exposure thereof, as the great misguiding force of human life, had been enjoined upon him as his mission by the Delphian God.^b

ἡγούνται τὰ προσήκοντα πράττειν.—αὐτὸς δὲ περὶ τῶν ἀνθρωπείων ἀεὶ διελέγετο, σκοπῶν τί εὐσεβές, τί ἀσεβές, τί καλόν, τί αἰσχρόν, τί δίκαιον, τί ἄδικον, τί σωφροσύνη, τί μανία, τί πόλις, τί πολιτικός, τί ἀρχὴ ἀνθρώπων, τί ἀρχικὸς ἀνθρώπων, &c.

Compare IV. vii. 2-9.

^a Xenoph. Memor. I. ii. 26-46; III. vi. 2-15; IV. ii.; IV. vi. 1: σκοπῶν σὺν τοῖς συνοῦσι τί ἕκαστον εἶναι τῶν ὄντων οὐδέποτε ἔληγε.—IV.

iv. 9: ἀρκεῖ γὰρ ὅτι τῶν ἄλλων καταγελαῖς, ἐρωτῶν μὲν καὶ ἐλέγχων πάντας, αὐτὸς δ' οὐδενὶ θέλων ὑπέχειν λόγον οὐδὲ γνώμην ἀποφαίνεισθαι περὶ οὐδενός.—Plato, Republic I. pp. 336-337; Theætet. p. 150 C.

^b Plato, Apol. Sokrat. pp. 22, 28, 33: ἐμοὶ δὲ τοῦτο, ὥς ἐγὼ φημι, προστέτακται ὑπὸ τοῦ θεοῦ πράττειν καὶ ἐκ μαντειῶν καὶ ἐξ ἐνυπνίων καὶ παντὶ τρόπῳ, ὅπῃ τις ποτε καὶ ἄλλη θεία μοῖρα ἀνθρώπῳ καὶ ὅτιοῦν προσέ-

The peculiarities which Aristotle ascribes to Sokrates, are—that he talked upon ethical topics instead of physical, that he fastened especially on the definitions of general terms, and that his discussions were inductive, bringing forward many analogous illustrative or probative particulars to justify a true general proposition, and one or a few to set aside a false one.* This Sokratic practice is copiously illustrated both by Plato in many of his dialogues, and by Xenophon throughout all the *Memorabilia*.^b In Plato, however, Sokrates is often introduced as spokesman of doctrines not his own; while in Xenophon we have before us the real man as he talked in the market-place, and apparently little besides. Xenophon very emphatically exhibits to us a point which in Plato's Dialogues of Search is less conspicuously marked, though still apparent; viz., the power possessed by Sokrates of accommodating himself to the ordinary mind in all its varieties—his habit of dwelling on the homely and familiar topics of the citizen's daily life—his constant appeal to small and even vulgar details, as the way of testing large and imposing generalities.^c Sokrates possessed to a surprising

ταξε πράττειν.—Plato, *Sophist*. pp. 230-231; *Menon*, pp. 80, A., 84, B.

Compare the analysis of the Platonic Apology in my work, 'Plato and the Other Companions of Sokrates,' Vol. I. c. vii.

* *Aristot. Metaph. M. iv. p. 1078, b. 28*: δύο γὰρ ἔστιν ἃ τις ἂν ἀποδοίη Σωκράτει δικαίως, τοὺς τ' ἐπακτικούς λόγους καὶ τὸ ὀρίζεσθαι καθόλου· ταῦτα γὰρ ἔστιν ἄμφω περὶ ἀρχὴν ἐπιστήμης.—ib. A. vi. p. 987, b. 1: Σωκράτους δὲ περὶ μὲν τὰ ἡθικά πραγματευομένου, περὶ δὲ τῆς ὅλης φύσεως οὐθέν, ἐν μέντοι τούτοις τὸ καθόλου ζητοῦντος καὶ περὶ ὀρισμῶν ἐπιστήσαντος πρώτου τὴν διάνοιαν.

^b No portion of the *Memorabilia* illustrates this point better than the dialogue with Euthydēmus, IV. vi.

^c Xenophon, *Memor.* IV. vi. 15: ὅποτε δὲ αὐτός τι τῷ λόγῳ διεξίτοι, διὰ τῶν μάλιστα ὁμολογουμένων ἐπορεύετο, νομίζων ταύτην τὴν ἀσφάλειαν εἶναι λόγον· τοιγαροῦν πολὺ μάλιστα ὡν ἐγὼ οἶδα, ὅτε λέγοι, τοὺς ἀκούοντας ὁμολογοῦντας παρέιχεν· ἔφη δὲ καὶ Ὅμηρον τῷ Ὀδυσσεὶ ἀναθεῖναι τὸ ἀσφαλῆ ῥήτορα εἶναι, ὡς ἱκανὸν αὐτὸν ὄντα διὰ τῶν δοκούντων τοῖς ἀνθρώποις ἔχειν τοὺς λόγους.

Compare ib. I. ii. 38; IV. iv. 6; also Plato, *Theatētus*, p. 147, A, B; *Republic* I. p. 338, C.

degree the art of selecting arguments really persuasive to ordinary non-theorizing men; so as often to carry their assent along with him, and still oftener to shake their previous beliefs, if unwarranted, or even if adopted by mere passive receptivity without preliminary reflection and comparison.

Without departing from Aristotle's description, therefore, we may conceive the change operated by Sokrates in philosophical discussion under a new point of view. In exchanging Physics for Ethics, it vulgarized both the topics and the talk of philosophy. Physical philosophy as it stood in the age of Sokrates (before Aristotle had broached his peculiar definition of Nature) was merely an obscure, semi-poetical, hypothetical *Philosophia Prima*,^a or rather *Philosophia Prima* and *Philosophia Secunda* blended in one. This is true of all its varieties,—of the Ionic philosophers as well as of Pythagoras, Parmenides, Herakleitus, Anaxagoras, Empedokles, and even Demokritus. Such philosophy, dimly enunciated and only half intelligible,^b not merely did not tend to explain or clear up phenomenal experiences, but often added new difficulties of its own. It presented itself sometimes even as discrediting, overriding, and contradicting experience; but never as opening any deductive road from the Universal down to its particulars.^c Such theories, though in cir-

^a Aristot. Metaph. Γ. iii. p. 1005, a. 31.

^b Ibid. A. x. p. 993, a. 15: ψελ-
λιζομένη γὰρ ὅκειν ἢ πρώτη φιλοσο-
φία περὶ πάντων, ἅτε νέα τε κατ'
ἀρχὰς οὖσα καὶ τὸ πρῶτον.

^c Ibid. a. i. p. 993, b. 6: τὸ ὅλον
τι ἔχειν καὶ μέρος μὴ δύνασθαι δηλοῖ
τὸ χαλεπὸν αὐτῆς (τῆς περὶ τῆς ἀλη-
θείας θεωρίας).

Alexander ap. Schol. p. 104,

Bonitz: εἰς ἔννοιαν μὲν τοῦ ὅλου καὶ
ἐπίστασιν πάντας ἐλθεῖν, μηδὲν δὲ
μέρος αὐτῆς ἐξακριβώσασθαι δυναθῆναι,
δηλοῖ τὸ χαλεπὸν αὐτῆς.

Aristotle indicates how much the
Philosophia Prima of his earlier pre-
decessors was uncongenial to and at
variance with phenomenal experience
—Metaphys. A. v. p. 986, b. 31.

To shape their theories in such a
way—τὰ φαινόμενα εἰ μέλλει τις ἀπο-

culatation among a few disciples and opponents, were foreign and unsuitable to the talk of ordinary men. To pass from these cloudy mysteries to social topics and terms which were in every one's mouth, was the important revolution in philosophy introduced in the age of Sokrates, and mainly by him.

The drift of the Sokratic procedure was to bring men into the habit of defining those universal terms which they had hitherto used undefined, the definitions being verified by induction of particulars as the ultimate authority. It was a procedure built upon common speech, but improving on common speech; the talk of every man being in propositions, each including a subject and predicate, but neither subject nor predicate being ever defined. It was the mission of Sokrates to make men painfully sensible of that deficiency, as well as to enforce upon them the inductive evidence by which alone it could be rectified. Now the Analytic and Dialectic of Aristotle grew directly out of this Sokratic procedure, and out of the Platonic dialogues in so far as they enforced and illustrated it. When Sokrates had supplied the negative stimulus and indication of what was amiss, together with the appeal to Induction as final authority, Aristotle furnished, or did much to furnish, the positive analysis and complementary precepts, necessary to clear up, justify, and assure the march of reasoned truth.*

δόσσειν (Metaphys. A. viii. p. 1073, b. 36), was an obligation which philosophers hardly felt incumbent on them prior to the Aristotelian age. Compare Simplicius (ad Aristot. Physic. I.), p. 328, a. 1-26, Schol. Br.; Schol. (ad Aristot. De Cælo III. i.) p. 509, a. 26-p. 510, a. 13.

* Though the theorizing and the

analysis of Aristotle presuppose and recognize the Sokratic procedure, yet, if we read the Xenophontic Memorabilia, IV. vii., and compare therewith the first two chapters of Aristotle's Metaphysica, in which he describes and extols *Philosophia Prima*, we shall see how radically antipathetic were the two points of

What Aristotle calls the syllogistic *principia*, or the principles of syllogistic demonstration, are nothing else than the steps towards reasoned truth, and the precautions against those fallacious appearances that simulate it. The steps are stated in their most general terms, as involving both Deduction and Induction; though in Aristotle we find the deductive portion copiously unfolded and classified, while Induction, though recognized as the only verifying foundation of the whole, is left without expansion or illustration.

If we go through the Sokratic conversations as reported in the Memorabilia of Xenophon, we shall find illustration of what has been just stated: we shall see Sokrates recognizing and following the common speech of men, in propositions combining subject and predicate; but trying to fix the meaning of both these terms, and to test the consistency of the universal predications by appeal to particulars. The syllogizing and the inductive processes are exhibited both of them in actual work on particular points of discussion. Now on these processes Aristotle brings his analysis to bear, eliciting and enunciating in general terms their *principia* and their conditions. We have seen that he expressly declares the analysis of these *principia* to belong to First Philosophy.* And thus it is that First Philosophy as conceived by Aristotle, acknowledges among its *fundamenta* the habits of common Hellenic speech; subject

view: Sokrates confining himself to practical results—μέχρι τοῦ ὠφελιμοῦ; Aristotle extolling *Philosophia Prima*, because it soars above practical results, and serves as its own reward, elevating the philosopher to a partial communion with the contemplative self-sufficiency of the Gods. Indeed the remark of Aristotle, p. 983, a. 1-6, denying altogether the

jealousy ascribed to the Gods, &c., is almost a reply to the opinion expressed by Sokrates, that a man by such overweening researches brought upon himself the displeasure of the Gods, as prying into their secrets (Xen. Mem. IV. vii. 6; I. i. 12).

* Aristot. Metaph. Γ. iii. p. 1005, a. 19-b. 11.

only to correction and control by the Sokratic cross-examining and testing discipline. He stands distinguished among the philosophers for the respectful attention with which he collects and builds upon the beliefs actually prevalent among mankind.* Herein as well as in other respects his First Philosophy not only differed from that of all the pre-Sokratic philosophers (such as Herakleitus, Parmenides, Anaxagoras, &c.) by explaining the *principia* of Analytic and Dialectic as well as those of Physics and Physiology, but it also differed from that of the post-Sokratic and semi-Sokratic Plato, by keeping up a closer communion both with Sokrates and with common speech. Though Plato in his Dialogues of Search appears to apply the inductive discipline of Sokrates, and to handle the Universal as referable to and dependent upon its particulars; yet the Platonic *Philosophia Prima* proceeds upon a view totally different. It is a fusion of Parmenides with Herakleitus;^b divorcing the Universal altogether from its particulars; treating the Universal as an independent reality and as the only permanent reality; neglecting the particulars as so many unreal, evanescent, ever-changing copies or shadows thereof. Aristotle expressly intimates his dissent from the divorce or separation thus introduced by

* See Aristot. De Divinat. per Somnum, i. p. 462, b. 15; De Cælo, I. iii. p. 270, b. 3, 20; Metaphys. A. ii. p. 982, a. 4-14. Alexander ap. Scholia, p. 525, b. 36, Br.: *ἐν πᾶσιν ἔθος δὲ ταῖς κοιναῖς καὶ φυσικαῖς τῶν ἀνθρώπων προλήψεσιν ἀρχαῖς εἰς τὰ δεικνύμενα πρὸς αὐτοῦ χρησθαι.*

^b Aristot. Metaph. A. vi. p. 987, a. 32; M. iv. p. 1078, b. 12. That Plato's *Philosophia Prima* involved a partial coincidence with that of Herakleitus is here distinctly announced

by Aristotle: that it also included an intimate conjunction or fusion of Parmenides with Herakleitus is made out in the ingenious Dissertation of Herbart, De Platonici Systematis Fundamento, Göttingen (1805), which winds up with the following epigrammatic sentence as result (p. 50):—"Divide Heracliti *γένεσιν οὐσίᾳ* Parmenidis, et habebis Ideas Platonicas." Compare Plato, Republic VII. p. 515, seq.

Plato. He proclaims his adherence to the practice of Sokrates, which kept the two elements together, and which recognized particulars as the ultimate reality and test for the Universal.* Upon this doctrine his First Philosophy is built; being distinguished hereby from all the other varieties broached by either his predecessors or contemporaries.

The Maxim of Contradiction, which Aristotle proclaims as the first and firmest *principium* of syllogizing, may be found perpetually applied to particular cases throughout the Memorabilia of Xenophon and the Sokratic dialogues of Plato. Indeed the Elenchus for which Sokrates was so distinguished, is nothing more than an ever-renewed and ingenious application of it; illustrating the painful and humiliating effect produced even upon common minds by the shock of a plain contradiction, when a respondent, having at first confidently laid down some universal affirmative, finds himself unexpectedly compelled to admit, in some particular case, the contradictory negative. As against a Herakleitean, who saw no difficulty in believing both sides of the contradiction to be true at once, the Sokratic Elenchus would have been powerless. What Aristotle did was, to abstract and elicit the general rules of the process; to classify propositions according to their logical value, in such manner that he could formulate clearly the structure of the two propositions between which an exact contradictory antithesis subsisted. The important logical distinctions between pro-

* Aristot. Metaph. M. iv. p. 1078, b. 17, seq.; ix. p. 1086, a. 37: τὰ μὲν οὖν ἐν τοῖς αἰσθητοῖς καθ' ἕκαστα ρεῖν ἐνόμζον (Platonici) καὶ μένειν οὐθὲν αὐτῶν, τὸ δὲ καθόλου παρὰ ταῦτα εἶναι τε καὶ ἕτερόν τι εἶναι. τοῦτο δ',

ὥσπερ ἐν τοῖς ἔμπροσθεν ἐλέγομεν, ἐκίνησε μὲν Σωκράτης διὰ τοὺς ὀρισμούς, οὐ μὴν ἐχώρισέ γε τῶν καθ' ἕκαστον. καὶ τοῦτο ὀρθῶς ἐνόησεν οὐ χωρίσας.

positions *contradictory* and propositions *contrary*, was first clearly enunciated by Aristotle; and, until this had been done, the Maxim of Contradiction could not have been laid down in a defensible manner. Indeed we may remark that, while this Maxim is first promulgated as a formula of First Philosophy in Book Γ. of the *Metaphysica*, it had already been tacitly assumed and applied by Aristotle throughout the *De Interpretatione*, *Analytica*, and *Topica*, as if it were obvious and uncontested. The First Philosophy of Aristotle was adapted to the conditions of ordinary colloquy as amended and tested by Sokrates, furnishing the theoretical basis of his practical Logic.

But, as Aristotle tells us, there were several philosophers and dialecticians who did not recognize the Maxim; maintaining that the same proposition might be at once true and false—that it was possible for the same thing both to be and not to be. How is he to deal with these opponents? He admits that he cannot demonstrate the Maxim against them, and that any attempt to do this would involve *Petitio Principii*. But he contends for the possibility of demonstrating it in a peculiar way—*refutatively* or *indirectly*; that is, provided that the opponents can be induced to grant (not indeed the truth of any proposition, to the exclusion of its contradictory antithesis, which concession he admits would involve *Petitio Principii*, but) the fixed and uniform signification of terms and propositions. Aristotle contends that the opponents ought to grant thus much, under penalty of being excluded from discussion as incapables or mere plants.* I do not imagine that the opponents themselves would have felt obliged to grant as much as

* Aristot. *Metaph.* Γ. iv. p. 1006, a. 11, seq.

he here demands. The *onus probandi* lay upon him, as advancing a positive theory; and he would have found his indirect or refutative demonstration not more available in convincing them than a direct or ordinary demonstration. Against respondents who proclaim as their thesis the negative of the Maxim of Contradiction, refutation and demonstration are equally impossible. No dialectical discussion could ever lead to any result; for you can never prove more against them than what their own thesis unequivocally avows.* As against Herakleitus and Anaxagoras, I do not think that Aristotle's qualified vindication of the Maxim has any effective bearing.

But Aristotle is quite right in saying that neither dialectical debate nor demonstration can be carried on unless terms and propositions be defined, and unless to each term there be assigned one special signification, or a limited number of special significations—excluding a certain number of others. This demand for definitions, and also the multiplied use of inductive interrogations, keeping the Universal implicated with and dependent upon its particulars—are the innovations which Aristotle expressly places to the credit of Sokrates. The Sokratic Elenchus operated by first obtaining from the respondent a definition, and then testing it through a variety of particulars: when the test brought out a negative as against the pre-asserted affirmative, the contradiction between the two was felt as an intellectual shock by the respondent, rendering it impossible to believe both at once; and the unrivalled acuteness of Sokrates was exhibited in rendering such shock peculiarly pungent and humiliating. But the Sokratic Elenchus presupposes this psychological fact,

* Aristot. Metaph. Γ. iv. p. 1006, a. 26: ἀναιρῶν γὰρ λόγον ὑπομένει λόγον.
—p. 1008, a. 30.

common to most minds, ordinary as well as superior,—the intellectual shock felt when incompatible beliefs are presented to the mind at once. If the collocutors of Sokrates had not been so constituted by nature, the magic of his colloquy would have been unfelt and inoperative. Against a Herakleitean, who professed to feel no difficulty in believing both sides of a contradiction at once, he could have effected nothing: and if not he, still less any other dialectician. Proof and disproof, as distinguished one from the other, would have had no meaning; dialectical debate would have led to no result.

Thus, then, although Aristotle was the first to enunciate the Maxim of Contradiction in general terms, after having previously originated that logical distinction of contrary and contradictory Propositions and doctrine of legitimate *Antiphrasis* which rendered such enunciation possible,—yet, when he tries to uphold it against dissentients, it cannot be said that he has correctly estimated the logical position of those whom he was opposing, or the real extent to which the defence of the Maxim can be carried without incurring the charge of *Petitio Principii*. As against Protagoras, no defence was needed, for the Protagorean “*Homo Mensura*” is not incompatible with the Maxim of Contradiction; while, as against Herakleitus, Anaxagoras, Parmenides, &c., no defence was practicable, and the attempt of Aristotle to construct one appears to me a failure. All that can be really done in the way of defence is, to prove the Maxim in its general enunciation by an appeal to particular cases: if your opponent is willing to grant these particular cases, you establish the general Maxim against him by way of Induction; if he will not grant them, you cannot prove the general Maxim at all. Suppose you are attempting to prove to an Herakleitean that an

universal affirmative and its contradictory particular negative cannot be both true at once. You begin by asking him about particular cases, Whether it is possible that the two propositions—All men are mortal, and, Some men are not mortal—can both be true at once? If he admits that these two propositions cannot both be true at once, if he admits the like with regard to other similar pairs of contradictories, and if he can suggest no similar pair in which both propositions are true at once, then you may consider yourself as having furnished a sufficient inductive proof, and you may call upon him to admit the Maxim of Contradiction in its general enunciation. But, if he will not admit it in the particular cases which you tender, or if, while admitting it in these, he himself can tender other cases in which he considers it inadmissible, then you have effected nothing sufficient to establish the general Maxim against him. The case is not susceptible of any other or better proof. It is in vain that Aristotle tries to diversify the absurdity, and to follow it out into collateral absurd consequences. If the Herakleitean does not feel any repulsive shock of contradiction in a definite particular case, if he directly announces that he believes the two propositions to be both at once true, then the collateral inconsistencies and derivative absurdities, which Aristotle multiplies against him, will not shock him more than the direct contradiction in its naked form. Neither the general reasoning of Aristotle, nor the Elenchus of Sokrates brought to bear in particular cases, would make any impression upon him; since he will not comply with either of the two conditions required for the Sokratic Elenchus: he will neither declare definitions, nor give suitable point and sequence to inductive interrogatories.

Nor is anything gained, as Aristotle supposes, by reminding the Herakleitean of his own practice in the

daily concerns of life and in conversation with common persons: that he feeds himself with bread to-day, in the confidence that it has the same properties as it had yesterday;* that, if he wishes either to give or to obtain information, the speech which he utters or that which he acts upon must be either affirmative or negative. He will admit that he acts in this way, but he will tell you that he has no certainty of being right; that the negative may be true as well as the affirmative. He will grant that there is an inconsistency between such acts of detail and the principles of the Herakleitean doctrine, which recognize no real stability of any thing, but only perpetual flux or process; but inconsistency in detail will not induce him to set aside his principles. The truth is, that neither Herakleitus, nor Parmenides, nor Anaxagoras, nor Pythagoras, gave themselves much trouble to reconcile Philosophy with facts of detail. Each fastened upon some grand and impressive primary hypothesis, illustrated it by a few obvious facts in harmony therewith, and disregarded altogether the mass of contradictory facts. That a favourite hypothesis should contradict physical details, was noway shocking to them. Both the painful feeling accompanying that shock, and the disposition to test the value of the hypothesis by its consistency with inductive details, became first developed and attended to in the dialectical age, mainly through the working of Sokrates. The Analytic and the First Philosophy of Aristotle were constructed after the time of Sokrates, and with regard, in a very great degree, to the Sokratic tests and conditions—to the indispensable necessity for definite subjects and predicates, capable of standing the inductive scrutiny of particulars. In this respect the *Philosophia*

* Aristot. Metaph. K. vi. p. 1063, a. 31.

Prima of Aristotle stands distinguished from that of any of the earlier philosophers, and even from that of Plato. He departed from Plato by recognizing the *Hoc Aliquid* or the definite Individual, with its essential Predicates, as the foundation of the Universal, and by applying his analytical factors of Form and Matter to the intellectual generation of the Individual (τὸ σύνολον — τὸ συναμφότερον); and thus he devised a First Philosophy conformable to the habits of common speech as rectified by the critical scrutiny of Sokrates. We shall see this in the next Chapter. * * * *

[The Author's MS. breaks off here. What follows on the next page, as Chapter XII., is the exposition of Aristotle's Psychology, originally contributed to the third edition of Professor Bain's work 'The Senses and the Intellect,' in 1868.]

CHAPTER XII.

DE ANIMÂ, ETC.

To understand Aristotle's Psychology, we must look at it in comparison with the views of other ancient Greek philosophers on the same subject, as far as our knowledge will permit. Of these ancient philosophers, none have been preserved to us except Plato, and to a certain extent Epikurus, reckoning the poem of Lucretius as a complement to the epistolary remnants of Epikurus himself. The predecessors of Aristotle (apart from Plato) are known only through small fragments from themselves, and imperfect notices by others; among which notices the best are from Aristotle himself.

In the *Timæus* of Plato we find Psychology, in a very large and comprehensive sense, identified with Kosmology. The Kosmos, a scheme of rotatory spheres, has both a soul and a body: of the two, the soul is the prior, grander, and predominant, though both of them are constructed or put together by the Divine Architect or Demiurgus. The kosmical soul, rooted at the centre, and stretched from thence through and around the whole, is endued with self-movement, and with the power of initiating movement in the kosmical body; moreover, being cognitive as well as motive, it includes in itself three ingredients mixed together:—(1) The Same—the indivisible and unchangeable essence of Ideas; (2) The Diverse—the Plural—the divisible bodies or elements; (3) A Compound, formed of both these ingredients melted into one. As the kosmical

soul is intended to know all the three—*Idem*, *Diversum*, and *Idem* with *Diversum* in one, so it must comprise in its own nature all the three ingredients, according to the received Axiom—Like knows like—Like is known by like. The ingredients are blended together according to a scale of harmonic proportion. The element *Idem* is placed in an even and undivided rotation of the outer or sidereal sphere of the Kosmos; the element *Diversum* is distributed among the rotations, all oblique, of the seven interior planetary spheres, that is, the five planets, with the Sun and Moon. Impressions of identity and diversity, derived either from the ideal and indivisible, or from the sensible and divisible, are thus circulated by the kosmical soul throughout its own entire range, yet without either voice or sound. Reason and Science are propagated by the circle of *Idem*: Sense and Opinion, by those of *Diversum*. When these last-mentioned circles are in right movement, the opinions circulated are true and trustworthy.*

It is thus that Plato begins his Psychology with Kosmology: the Kosmos is in his view a divine immortal being or animal, composed of a spherical rotatory body and a rational soul, cognitive as well as motive. Among the tenants of this Kosmos are included, not only gods, who dwell in the peripheral or celestial regions, but also men, birds, quadrupeds, and fishes. These four inhabit the more central or lower regions of air, earth, and water. In describing men and the inferior animals, Plato takes his departure from the divine Kosmos, and proceeds downwards by successive stages of increasing degeneracy and corruption. The cranium of man was constructed as a little Kosmos,

* See this doctrine of the *Timæus* more fully expounded in 'Plato and the Other Companions of Sokrates,' III. xxxvi. pp. 250-256, seq.

including in itself an immortal rational soul, composed of the same materials, though diluted and adulterated, as the kosmical soul; and moving with the like rotations, though disturbed and irregular, suited to a rational soul. This cranium, for wise purposes which Plato indicates, was elevated by the gods upon a tall body, with attached limbs for motion in different directions—forward, backward, upward, downward, to the right and left.* Within this body were included two inferior and mortal souls: one in the thoracic region near the heart, the other lower down, below the diaphragm, in the abdominal region; but both of them fastened or rooted in the spinal marrow or cord, which formed a continuous line with the brain above. These two souls were both emotional; the higher or *thoracic* soul being the seat of courage, energy, anger, &c., while to the lower or *abdominal* soul belonged appetite, desires, love of gain, &c. Both of them were intended as companions and adjuncts, yet in the relation of dependence and obedience, to the *rational* soul in the cranium above; which, though unavoidably debased and perturbed by such unworthy companionship, was protected partially against the contagion by the difference of location, the neck being built up as an isthmus of separation between the two. The thoracic soul, the seat of courage, was placed nearer to the head, in order that it might be the medium for transmitting influence from the cranial soul above, to the abdominal soul below; which last was at once the least worthy and the most difficult to control. The heart, being the initial point of the veins, received the orders and inspirations of the cranial soul, transmitting them onward through its many blood-channels to all the sensitive parts of the body; which were thus

* Plato, *Timæus*, p 44, E.; 'Plato and Other Comp. of Sokr.', III. xxxvi. p. 264.

rendered obedient, as far as possible, to the authority of man's rational nature.^a The unity or communication of the three souls was kept up through the continuity of the cerebro-spinal column.

But, though by these arrangements the higher soul in the cranium was enabled to control to a certain extent its inferior allies, it was itself much disturbed and contaminated by their reaction. The violence of passion and appetite, the constant processes of nutrition and sensation pervading the whole body, the multifarious movements of the limbs and trunk, in all varieties of direction,—these causes all contributed to agitate and to confuse the rotations of the cranial soul, perverting the arithmetical proportions and harmony belonging to them. The circles of Same and Diverse were made to convey false information; and the soul, for some time after its first junction with the body, became destitute of intelligence.^b In mature life, indeed, the violence of the disturbing causes abates, and the man may become more and more intelligent, especially if placed under appropriate training and education. But in many cases no such improvement took place, and the rational soul of man was irrecoverably spoiled; so that new and worse breeds were formed, by successive steps of degeneracy. The first stage, and the least amount of degeneracy, was exhibited in the formation of woman; the original type of man not having included diversity of sex. By farther steps of degradation, in different ways, the inferior animals were formed—birds, quadrupeds, and fishes.^c In each of these, the rational soul became weaker and worse; its circular rotations

^a Plato, *Timæus*, p. 70; 'Plato and Other Comp. of Sokr.', III. pp. 271-272.

'Plato and Other Comp. III. pp. 262-264.

^c Plato, *Timæus*, p. 91.

Other Comp. of Sokr.'

^b Plato, *Timæus*, pp. 43-44;

ceased with the disappearance of the spherical cranium, and animal appetites with sensational agitations were left without control. As man, with his two emotional souls and body joined on to the rational soul and cranium, was a debased copy of the perfect rational soul and spherical body of the divine Kosmos, so the other inhabitants of the Kosmos proceeded from still farther debasement and disrationalization of the original type of man.

Such is the view of Psychology given by Plato in the *Timæus*; beginning with the divine Kosmos, and passing downwards from thence to the triple soul of man, as well as to the various still lower successors of degenerated man. It is to be remarked that Plato, though he puts soul as prior to body in dignity and power, and as having for its functions to control and move body, yet always conceives soul as attached to body, and never as altogether detached, not even in the divine Kosmos. The soul, in Plato's view, is self-moving and self-moved: it is both *Primum Mobile* in itself, and *Primum Movens* as to the body; it has itself the corporeal properties of being extended and moved, and it has body implicated with it besides.

The theory above described, in so far as it attributes to the soul rational constituent elements (*Idem, Diversum*), continuous magnitude, and circular rotations, was peculiar to Plato, and is criticized by Aristotle as the peculiarity of his master.* But several other philosophers agreed with Plato in considering self-motion, together with motive causality and faculties perceptive and cognitive, to be essential characteristics of soul. Alkmæon declared the soul to be in perpetual motion, like all the celestial bodies; hence it was also immortal,

* Aristot. *De Animâ*, I. iii. p. 407, a. 2.

as they were.^a Herakleitus described it as the subtlest of elements, and as perpetually fluent; hence it was enabled to know other things, all of which were in flux and change. Diogenes of Apollonia affirmed that the element constituent of soul was air, at once mobile, all-penetrating, and intelligent. Demokritus declared that among the infinite diversity of atoms those of spherical figure were the constituents both of the element fire and of the soul: the spherical atoms were by reason of their figure the most apt and rapid in moving; it was their nature never to be at rest, and they imparted motion to everything else.^b Anaxagoras affirmed soul to be radically and essentially distinct from every thing else, but to be the great primary source of motion, and to be endued with cognitive power, though at the same time not suffering impressions from without.^c Empedokles considered soul to be a compound of the four elements—fire, water, air, earth; with love and hatred as principles of motion, the former producing aggregation of elements, the latter, disgregation: by means of each element the soul became cognizant of the like element in the Kosmos. Some Pythagoreans looked upon the soul as an aggregate of particles of extreme subtlety, which pervaded the air and were in perpetual agitation. Other Pythagoreans, however, declared it to be an harmonious or proportional mixture of contrary elements and qualities; hence its universality of cognition, extending to all.^d

A peculiar theory was delivered by Xenokrates (who, having been fellow-pupil with Aristotle under Plato, afterwards conducted the Platonic School, during all

^a Aristot. *De Animâ*, I. ii. p. 405, a. 29.

^b *Ibid.* p. 404, a. 8; p. 405, a. 22; p. 406, b. 17.

^c *Ibid.* p. 405, a. 13, b. 19.

^d *Ibid.* p. 404, a. 16; p. 407, b. 27.

the time that Aristotle taught at the Lykeium), which Aristotle declares to involve greater difficulty than any of the others. Xenokrates described the soul as "a number (a monad or indivisible unit) moving itself."^a He retained the self-moving property which Plato had declared to be characteristic of the soul, while he departed from Plato's doctrine of a soul with continuous extension. He thus fell back upon the Pythagorean idea of number as the fundamental essence. Aristotle impugns, as alike untenable, both the two properties here alleged—number and self-motion. If the monad both moves and is moved (he argues), it cannot be indivisible; if it be moved, it must have position, or must be a point; but the motion of a point is a line, without any of that variety that constitutes life. How can the soul be a monad? or, if it be, what difference can exist between one soul and another, since monads cannot differ from each other except in position? How comes it that some bodies have souls and others not? and how, upon this theory, can we explain the fact that many animated bodies, both plants and animals, will remain alive after being divided, the monadic soul thus exhibiting itself as many and diverse? Besides, the monad set up by Xenokrates is hardly distinguishable from the highly attenuated body or spherical atom recognized by Demokritus as the origin or beginning of bodily motion.^b

These and other arguments are employed by Aristotle to refute the theory of Xenokrates. In fact, he rejects all the theories then current. After having dismissed the self-motor doctrine, he proceeds to impugn the views of those who declared the soul to be a compound of all the four elements, in order that they might account for

^a Aristot. *De Animâ*, I. iv. p. 408, b. 32.

^b *Ibid.* p. 409, b. 12.

its percipient and cognitive faculties upon the maxim then very generally admitted*—That like is perceived and known by like. This theory, the principal champion of which was Empedokles, appears to Aristotle inadmissible. You say (he remarks) that like knows like; how does this consist with your other doctrine, that like cannot act upon, or suffer from, like, especially as you consider that both in perception and in cognition the percipient and cognizant suffers or is acted upon?^b Various parts of the cognizant subject, such as bone, hair, ligaments, &c., are destitute of perception and cognition; how then can we know anything about bone, hair, and ligaments, since we cannot know them by like?^c Suppose the soul to be compounded of all the four elements; this may explain how it comes to know the four elements, themselves, but not how it comes to know all the combinations of the four; now innumerable combinations of the four are comprised among the *cognita*. We must assume that the soul contains in itself not merely the four elements, but also the laws or definite proportions wherein they can combine; and this is affirmed by no one.^d Moreover, *Ens* is an equivocal, or at least a multivocal, term; there are *Entia* belonging to each of the ten Categories. Now the soul cannot include in itself all the ten, for the different Categories have no elements in common; in whichever Category you rank the soul, it will know (by virtue of likeness) the *cognita* belonging to that category, but it will not know the *cognita* belonging to the other nine.^e Besides, even if we grant that the soul includes all the four elements, where is the cementing principle that combines all the four into one? The elements are

* Aristot. De Animâ, I. v. p. 409, b. 29.

^b Ibid. p. 410, a. 25.

^c Ibid. a. 30.

^d Ibid. p. 409, b. 28; p. 410, a. 12.

^e Ibid. p. 410, a. 20

merely matter; and what holds them together must be the really potent principle of soul; but of this no explanation is given.*

Some philosophers have assumed (continues Aristotle) that soul pervades the whole Kosmos and its elements; and that it is inhaled by animals in respiration along with the air.^b They forget that all plants, and even some animals, live without respiring at all; moreover, upon this theory, air and fire also, as possessing soul, and what is said to be a better soul, ought (if the phrase were permitted) to be regarded as animals. The soul of air or fire must be homogeneous in its parts; the souls of animals are not homogeneous, but involve several distinct parts or functions.^c The soul perceives, cogitates, opines, feels, desires, repudiates; farther, it moves the body locally, and brings about the growth and decay of the body. Here we have a new mystery:^d —Is the whole soul engaged in the performance of each of these functions, or has it a separate part exclusively consecrated to each? If so, how many are the parts? Some philosophers (Plato among them) declare the soul to be divided, and that one part cogitates and cognizes, while another part desires. But upon that supposition what is it that holds these different parts together? Certainly not the body (which is Plato's theory); on the contrary, it is the soul that holds together the body; for, as soon as the soul is gone, the body rots and disappears.^e If there be any thing that keeps together the divers parts of the soul as one, that something must be the true and fundamental soul; and we ought not to speak of the soul as having parts,

* Aristot. De Animâ, I. v. p. 410, pare the doctrine of Demokritus.
b. 10.

^b Ibid. ii. p. 404, a. 9: τοῦ ζῆν a. 1, 8, 16.

ἄρον εἶναι τὴν ἀναπνοήν, &c. Com- ^d Ibid. a. 30. ^e Ibid. b. 8.

but as essentially one and indivisible, with several distinct faculties. Again, if we are to admit parts of the soul, does each part hold together a special part of the body, as the entire soul holds together the entire body? This seems impossible; for what part of the body can the *Noûs* or Intellect (*e.g.*) be imagined to hold together? And, besides, several kinds of plants and of animals may be divided, yet so that each of the separate parts shall still continue to live; hence it is plain that the soul in each separate part is complete and homogeneous.*

Aristotle thus rejects all the theories proposed by antecedent philosophers, but more especially the two following:—That the soul derives its cognitive powers from the fact of being compounded of the four elements; That the soul is self-moved. He pronounces it incorrect to say that the soul is moved at all.^b He farther observes that none of the philosophers have kept in view either the full meaning or all the varieties of soul; and that none of these defective theories suffices for the purpose that every good and sufficient theory ought to serve, viz., not merely to define the essence of the soul, but also to define it in such a manner that the concomitant functions and affections of the soul shall all be deducible from it.^c Lastly, he points out that most of his predecessors had considered that the prominent characteristics of soul were—to be motive and to be percipient:^d while, in his opinion, neither of these two characteristics is universal or fundamental.

Aristotle requires that a good theory of the soul shall explain alike the lowest vegetable soul, and the

* Aristot. *De Animâ*, I. v. p. 411, b. 15-27.

^b *Ibid.* a. 25.

^c *Ibid.* i. p. 402, b. 16, seq.; v. p. 409, b. 15.

^d *Ibid.* ii. p. 403. b. 30.

highest functions of the human or divine soul. And, in commenting on those theorists who declared that the essence of soul consisted in movement, he remarks that their theory fails altogether in regard to the *Noûs* (or cogitative and intellective faculty of the human soul); the operation of which bears far greater analogy to rest or suspension of movement than to movement itself.^a

We shall now proceed to state how Aristotle steers clear (or at least believes himself to steer clear) of the defects that he has pointed out in the psychological theories of his predecessors. Instead of going back (like Empedokles, Plato, and others) to a time when the *Kosmos* did not yet exist, and giving us an hypothesis to explain how its parts came together or were put together, he takes the facts and objects of the *Kosmos* as they stand, and distributes them according to distinctive marks alike obvious, fundamental, and pervading; after which he seeks a mode of explanation in the principles of his own First Philosophy or Ontology. Whoever had studied the *Organon* and the *Physica* of Aristotle (apparently intended to be read prior to the treatise *De Animâ*) would be familiar with his distribution of *Entia* into ten Categories, of which, Essence or Substance was the first and the fundamental. Of these Essences or Substances the most complete and recognized were physical or natural bodies; and among such bodies one of the most striking distinctions, was between those that had life and those that had it not. By life, Aristotle means keeping up the processes of nutrition, growth, and decay.^b

^a Aristot. *De Animâ*, I. iii. p. 407, a. 32: *ἐτι δ' ἡ νόησις ἔοικεν ἡρεμήσει τινὶ ἢ ἐπιστάσει μᾶλλον ἢ κινήσει.*

^b Ibid. II. i. p. 412, a. 11: *οὐσίαι δὲ μάλιστα εἶναι δοκοῦσι τὰ σώματα,*

καὶ τούτων τὰ φυσικά· τῶν δὲ φυσικῶν τὰ μὲν ἔχει ζωὴν, τὰ δ' οὐκ ἔχει· ζωὴν δὲ λέγω, τὴν δι' αὐτοῦ τροφήν καὶ αὐξησιν καὶ φθίσιν.

: “To live” (Aristotle observes) is a term used in several different meanings; whatever possesses any one of the following four properties is said to live :^a (1) Intellect, (2) Sensible perception, (3) Local movement and rest, (4) Internal movement of nutrition, growth, and decay. But of these four the last is the only one common to all living bodies without exception; it is the foundation presupposed by the other three. It is the only one possessed by plants,^b and common to all plants as well as to all animals—to all animated bodies.

What is the animating principle belonging to each of these bodies, and what is the most general definition of it? Such is the problem that Aristotle states to himself about the soul.^c He explains it by a metaphysical distinction first introduced (apparently) by himself into *Philosophia Prima*. He considers Substance or Essence as an ideal compound; not simply as clothed with all the accidents described in the nine last Categories, but also as being analysable in itself, even apart from these accidents, into two abstract, logical, or notional elements or *principia*—Form and Matter. This distinction is borrowed from the most familiar facts of the sensible world—the shape of solid objects. When we see or feel a cube of wax, we distinguish the cubic shape from the waxen material;^d we may find the like shape in many other materials—wood, stone, &c.; we may find the like material in many different shapes—sphere, pyramid, &c.; but the matter has always some shape, and the shape has always some matter. We can name and reason about the matter, without attending to the

^a Aristot. De Animâ, II. ii. p. 413, a. 22: πλεοναχῶς δὲ τοῦ ζῆν λεγομένου, κἂν ἔν τι τούτων ἐνυπάρχη μόνον, ζῆν αὐτό φαμεν, &c.

^b Ibid. I. v. p. 411, b. 27, ad fin.

^c Ibid. II. ii. p. 413, b. 11: ἡ ψυχὴ

τῶν εἰρημένων τούτων ἀρχή.—Ibid. i. p. 412, a. 5: τίς ἂν εἴη κοινότατος λόγος αὐτῆς.

^d Ibid. p. 412, b. 7: τὸν κηρὸν καὶ τὸ σχῆμα.

shape, or distinguishing whether it be cube or sphere; we can name and reason about the shape, without attending to the material shaped, or to any of its various peculiarities. But this, though highly useful, is a mere abstraction or notional distinction. There can be no real separation between the two: no shape without some solid material; no solid material without some shape. The two are correlates; each of them implying the other, and neither of them admitting of being realized or actualized without the other.

This distinction of Form and Matter is one of the capital features of Aristotle's *Philosophia Prima*. He expands it and diversifies it in a thousand ways, often with subtleties very difficult to follow; but the fundamental import of it is seldom lost—two correlates inseparably implicated in fact and reality in every concrete individual that has received a substantive name, yet logically separable and capable of being named and considered apart from each other. The Aristotelian analysis thus brings out, in regard to each individual substance (or *Hoc Aliquid*, to use his phrase), a triple point of view: (1) The Form; (2) The Matter; (3) The compound or aggregate of the two—in other words, the inseparable *Ens*, which carries us out of the domain of logic or abstraction into that of the concrete or reality.*

* Aristot. *Metaphys.* Z. iii. p. 1029, a. 1-34; *De Animâ*, II. i. p. 412, a. 6; p. 414, a. 15.

In the first book of the *Physica*, Aristotle pushes this analysis yet further, introducing three *principia* instead of two:—(1) Form, (2) Matter, (3) Privation (of Form); he gives a distinct general name to the negation as well as to the affirmation; he provides a sign *minus* as counter-denomination to the sign *plus*. But

he intimates that this is only the same analysis more minutely discriminated, or in a different point of view: διὸ ἔστι μὲν ὡς δύο λεκτέον εἶναι τὰς ἀρχάς, ἔστι δ' ὡς τρεῖς (*Phys.* I. vii. p. 190, b. 29).

Materia Prima (Aristotle says, *Phys.* I. vii. p. 191, a. 8) is "knowable only by analogy"—i. e., explicable only by illustrative examples: as the brass is to the statue, as the wood is to the couch, &c.; natural

Aristotle farther recognizes, between these two logical correlates, a marked difference of rank. The Form stands first, the Matter second,—not in time, but in notional presentation. The Form is higher, grander, prior in dignity and esteem, more *Ens*, or more nearly approaching to perfect entity; the Matter is lower, meaner, posterior in dignity, farther removed from that perfection. The conception of wax, plaster, wood, &c., without any definite or determinate shape, is confused and unimpressive; but a name, connoting some definite shape, at once removes this confusion, and carries with it mental pre-eminence, alike as to phantasy, memory, and science. In the logical hierarchy of Aristotle, Matter is the inferior and Form the superior;^a yet neither of the two can escape from its relative character: Form requires Matter for its correlate, and is nothing in itself or apart,^b just as much as Matter requires Form; though from the inferior dignity of Matter we find it more frequently described as the second or correlate, while Form is made to stand forward as the *relatum*. For complete reality, we want the concrete individual having the implication of both; while, in regard to each of the constituents *per se*, no separate real existence can be affirmed, but only a nominal or logical separation.

substances being explained from works of art, as is frequent with Aristotle.

^a Aristot. De Gener. Animal. II. i. p. 729, a. 10. Matter and Form are here compared to the female and the male—to mother and father. Form is a cause operative, Matter a cause co-operative, though both are alike indispensable to full reality. Compare Physic. I. ix. p. 192, a. 13: ἡ μὲν γὰρ ὑπομένουσα συναυτία τῇ μορφῇ τῶν γινομένων ἐστίν, ὥσπερ μήτηρ.—ἀλλὰ τοῦτ' ἐστὶν ἡ ὕλη,

ὥσπερ ἂν εἰ θῆλυ ἄρρενος καὶ αἰσχροῦ καλοῦ (ἐφίετο).—De Partibus Animalium, I. i. p. 640, b. 28: ἡ γὰρ κατὰ τὴν μορφήν φύσις κυριώτερα τῆς ὕλης φύσεως.

Metaphys. Z. iii. p. 1029, a. 5: τὸ εἶδος τῆς ὕλης πρότερον καὶ μᾶλλον ὢν —p. 1039, a. 1.

See in Schwegler, pp. 13, 42, 83, Part II. of his Commentary on the Aristotelian Metaphysica.

^b Aristot. Metaph. Z. viii. p. 1033, h. 10, seq.

This difference of rank between Matter and Form—that the first is inferior and the last the superior—is sometimes so much put in the foreground, that the two are conceived in a different manner and under other names, as Potential and Actual. Matter is the potential, imperfect, inchoate, which the supervening Form actualizes into the perfect and complete; a transition from half-reality to entire reality or act. The Potential is the undefined or indeterminate^a—what may be or may not be—what is not yet actual, and may perhaps never become so, but is prepared to pass into actuality when the energizing principle comes to aid. In this way of putting the antithesis, the Potential is not so much implicated with the Actual as merged and suppressed to make room for the Actual: it is as a half-grown passing into a full-grown; being itself essential as a preliminary stage in the order of logical generation.^b The three

^a Aristot. *Metaphys.* Θ. viii. p. 1050, b. 10. He says, p. 1048, a. 35, that this distinction between Potential and Actual cannot be defined, but can only be illustrated by particular examples, several of which he proceeds to enumerate. Trendelenburg observes (Note ad Aristot. *De Animā*, p. 307):—“*Δύναμις* contraria adhuc in se inclusa tenet, ut in utrumque abire possit: *ἐνέργεια* alterum excludit.” Compare also ib. p. 302. This *May* or *May not be* is the widest and most general sense of the terms *δύναμις* and *δυνατόν*, common to all the analogical or derivative applications that Aristotle points out as belonging to them. It is more general than that which he gives as the *κύριος ὅρος* τῆς πρώτης δυνάμεως—*ἀρχή μεταβλητικῆ ἐν ἄλλῳ ἢ ᾧ ἄλλο*, and ought seemingly to be itself considered as the *κύριος ὅρος*. Cf. *Arist. Metaphys.* Δ. xii. p. 1020, a. 5, with the comment of Bonitz, who remarks upon the loose

language of Aristotle in this chapter, but imputes to Aristotle a greater amount of contradiction than he seems to deserve (*Comm. ad Metaphys.* pp. 256, 393).

^b *Ens potentiā* is a variety of *Ens* (*Arist. Metaph.* Δ. vii. p. 1017, b. 6), but an imperfect variety: it is *ὄν ἀτελές*, which may become matured into *ὄν τέλειον*, *ὄν ἐντελεχεία*, or *ἐνέργεια* (*Metaphys.* Θ. i. p. 1045, a. 34).

Matter is either remote or proximate, removed either by one stage or several stages from the *σύνολον* in which it culminates. Strictly speaking, none but proximate matter is said to exist *δυνάμει*. Alexander Schol. (ad *Metaph.* Θ. p. 1049, a. 19) p. 781, b. 39: *ἡ πόρρω ὦλη οὐ λέγεται δυνάμει. τί δὴ ποτε; ὅτι οὐ παρωνυμιάζομεν τὰ πράγματα ἐκ τῆς πόρρω ἀλλ’ ἐκ τῆς προσεχούς· λέγομεν γὰρ τὸ κιβώτιον ξύλινον ἐκ τῆς προσεχούς, ἀλλ’ οὐ γήινον ἐκ τῆς πόρρω.*

logical divisions—Matter, Form, and the resulting Compound or Concrete (τὸ σύνολον, τὸ συνειλημμένον), are here compressed into two—the Potential and the Actualization thereof. Actuality (ἐνέργεια, ἐντελέχεια) coincides in meaning partly with the Form, partly with the resulting Compound; the Form being so much exalted, that the distinction between the two is almost effaced.*

Two things are to be remembered respecting Matter, in its Aristotelian (logical or ontological) sense: (1) It may be Body, but it is not necessarily Body;^b (2) It is only intelligible as the correlate of Form: it can neither exist by itself, nor can it be known by itself (*i.e.*, when taken out of that relativity). This deserves notice, because to forget the relativity of a relative word, and to reason upon it as if it were an absolute, is an oversight not unfrequent. Furthermore, each variety of Matter has its appropriate Form, and each variety of Form its appropriate Matter, with which it correlates. There are various stages or gradations of Matter; from *Materia Prima*, which has no Form at all, passing upwards through successive partial developments to *Materia Ultima*; which last is hardly^c distinguishable from Form or from *Materia Formata*.

* Aristot. Metaphys. H. i. p. 1042, a. 25, seq. He scarcely makes any distinction here between ὕλη and δύναμις, or between μορφή and ἐνέργεια (cf. Θ. viii. p. 1050, a. 15).

Alexander in his Commentary on this book (Θ. iii. p. 1047, a. 30) p. 542, Bonitz's edit., remarks that ἐνέργεια is used by Aristotle in a double sense; sometimes meaning κίνησις πρὸς τὸ τέλος, sometimes meaning the τέλος itself. Comp. H. iii. p. 1043, a. 32; also the commentary of Bonitz, p. 393.

^b Aristot. Metaph. Z. xi. p. 1036,

a. 8: ἡ δ' ὕλη ἄγνωστος καθ' αὐτήν. ὕλη δ' ἡ μὲν αἰσθητή, ἡ δὲ νοητή· αἰσθητή μὲν οἷον χαλκὸς καὶ ξύλον καὶ ὅση κινητὴ ὕλη, νοητὴ δὲ ἡ ἐν τοῖς αἰσθητοῖς ὑπάρχουσα μὴ ἢ αἰσθητά, οἷον τὰ μαθηματικά.—p. 1035, a. 7.

Physica, III. vi. p. 207, a. 26; De Generat. et Corrupt. I. v. p. 320, b. 14-25.

^c Aristot. De Animâ, II. ii. p. 414, a. 25: ἐκάστου γὰρ ἡ ἐντελέχεια ἐν τῷ δυνάμει ὑπάρχοντι καὶ τῇ οἰκείᾳ ὕλῃ πέφυκεν ἐγγίνεσθαι.—Physica, II. ii. p. 194, b. 8: ἔτι τῶν πρὸς τι ἡ ὕλη· ἄλλω γὰρ εἶδει ἄλλῃ ὕλῃ.—

The distinction above specified is employed by Aristotle in his exposition of the Soul. The soul belongs to the Category of Substance or Essence (not to that of Quantity, Quality, &c.); but of the two points of view under which Essence may be presented, the soul ranks with Form, not with Matter—with the Actual, not with the Potential. The Matter to which (as correlate) soul stands related, is a natural body (*i.e.*, a body having within it an inherent principle of motion and rest) organized in a certain way, or fitted out with certain capacities and preparations to which soul is the active and indispensable complement. These capacities would never come into actuality without the soul; but, on the other hand, the range of actualities or functions in the soul depends upon, and is limited by, the range of capacities ready prepared for it in the body. The implication of the two constitutes the living subject, with all its functions, active and passive. If the eye were an animated or living subject, seeing would be its soul; if the carpenter's axe were living, cutting would be its soul;* the matter would be the lens or the iron in which this soul is embodied. It is not indispensable, however, that all the functions of the living subject should be at all times in complete exercise: the subject is still living, even while asleep; the eye is still a good eye, though at the moment closed. It is enough if the functional aptitude exist as a dormant

Metaph. H. vi. p. 1045, b. 17: *ἔστι δ', ὥσπερ εἴρηται, καὶ ἡ ἐσχάτη ὕλη καὶ ἡ μορφή ταυτό καὶ δυνάμει, τὸ δὲ ἐνέργεια.* See upon this doctrine Schwogler's Commentary, pp. 100, 154, 173, 240, Pt. 2nd. Compare also Arist. De Gener. Animal. II. i. p. 735, a. 9; also De Cælo, IV. iii. p. 310, b. 14.

* Aristot. De Animâ, II. i. p. 412, b. 18: *εἰ γὰρ ἦν ὁ ὀφθαλμὸς ζῷον, ψυχὴ ἂν ἦν αὐτοῦ ἢ ὄψις· αὕτη γὰρ οὐσία ὀφθαλμοῦ ἢ κατὰ τὸν λόγον. ὁ δ' ὀφθαλμὸς ὕλη ὄψεως, ἥς ἀπολείπουσιν οὐκέτ' ὀφθαλμός, πλὴν ὁμωνιμῶς, καθάπερ ὁ λίθινος καὶ ὁ γεγραμμένος.*

property, ready to rise into activity, when the proper occasions present themselves. This minimum of Form suffices to give living efficacy to the potentialities of body; it is enough that a man, though now in a dark night and seeing nothing, will see as soon as the sun rises; or that he knows geometry, though he is not now thinking of a geometrical problem. This dormant possession is what Aristotle calls the First Entelechy or Energy, *i.e.*, the lowest stage of Actuality, or the minimum of influence required to transform Potentiality into Actuality. The Aristotelian definition of Soul is thus: The first entelechy of a natural organized body, having life in potentiality.^a This is all that is essential to the soul; the second or higher entelechy (actual exercise of the faculties) is not a constant or universal property.^b

In this definition of Soul, Aristotle employs his own *Philosophia Prima* to escape the errors committed by prior philosophers. He does not admit that the soul is a separate entity in itself; or that it is composed (as Empedokles and Demokritus had said) of corporeal elements, or (as Plato had said) of elements partly corporeal, partly logical and notional. He rejects the imaginary virtues of number, invoked by the Pythagoreans and Xenokrates; lastly, he keeps before him not merely man, but all the varieties of animated objects, to which his definition must be adapted. His first capital point is to put aside the alleged identity, or similarity, or sameness of elements, between soul

^a Aristot. De Animâ, II. i. p. 412, a. 27: διὸ ψυχὴ ἐστὶν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ δυνάμει ζωὴν ἔχοντος· τοιοῦτο δὲ ὁ ἄνθρωπος ὁργανικόν. Compare Metaphysica, Z. x. p. 1035, b. 14-27.

^b Aristot. De Animâ, II. ii. p. 414, a. 8-18. The distinction here taken

between the first or lower stage of Entelechy, and the second or higher stage, coincides substantially with the distinction in the Nikomachean Ethica and elsewhere between *ἐξῆς* and *ἐνέργεια*. See Topica, IV. v. p. 125, b. 15; Ethic. Nikom. II. i-v. p. 1103 seq.

and body; and to put aside equally any separate existence or substantiality of soul. He effects both these purposes by defining them as essentially *relatum* and correlate; the soul, as the *relatum*, is unintelligible and unmeaning without its correlate, upon which accordingly its definition is declared to be founded.

The real animated subject may be looked at either from the point of view of the *relatum* or from that of the correlate; but, though the two are thus logically separable, in fact and reality they are inseparably implicated; and, if either of them be withdrawn, the animated subject disappears. "The soul (says Aristotle) is not any variety of body, but it cannot be without a body; it is not a body, but it is something belonging to or related to a body; and for this reason it is *in* a body, and in a body of such or such potentialities."^a Soul is to body (we thus read), not as a compound of like elements, nor as a type is to its copy, or *vice versâ*, but as a *relatum* to its correlate; dependent upon the body for all its acts and manifestations, and bringing to consummation what in the body exists as potentiality only. Soul, however, is better than body; and the animated being is better than the inanimate by reason of its soul.^b

The animated subject is thus a form immersed or implicated in matter; and all its actions and passions are so likewise.^c Each of these has its formal side, as concerns the soul, and its material side, as concerns the body. When a man or animal is angry, for example,

^a Aristot. De Animâ, II. ii. p. 414, a. 19: καὶ διὰ τοῦτο καλῶς ὑπολαμβάνουσιν οἷς δοκεῖ μὴτ' ἀνευ σώματος εἶναι μήτε σῶμά τι ἢ ψυχὴ· σῶμα μὲν γὰρ οὐκ ἔστι, σώματος δέ τι, καὶ διὰ τοῦτο ἐν σώματι ὑπάρχει, καὶ ἐν σώματι τοιούτῳ. Compare Aristot.

De Juventute et Senectute, i. p. 467, b. 14.

^b Aristot. De Generat. Animal. II. i. p. 731, b. 29.

^c Aristot. De Animâ, I. i. p. 403, a. 25: τὰ πάθη λόγοι ἐνυλοὶ εἰσιν. Compare II. i. p. 412, b. 10-25; p. 413, a. 2.

this emotion is both a fact of the soul and a fact of the body : in the first of these two characters, it may be defined as an appetite for hurting some one who has hurt us ; in the second of the two, it may be defined as an ebullition of the blood and heat round the heart.* The emotion, belonging to the animated subject or aggregate of soul and body, is a complex fact having two aspects, logically distinguishable from each other, but each correlating and implying the other. This is true not only in regard to our passions, emotions, and appetites, but also in regard to our perceptions, phantasms, reminiscences, reasonings, efforts of attention in learning, &c. We do not say that the soul weaves or builds (Aristotle observes^b) : we say that the animated subject, the aggregate of soul and body, *the man*, weaves or builds. So we ought also to say, not that the soul feels anger, pity, love, hatred, &c., or that the soul learns, reasons, recollects, &c., but that the man with his soul does these things. The actual movement throughout these processes is not in the soul, but in the body ; sometimes going *to* the soul (as in sensible perception), sometimes proceeding *from* the soul to the body (as in the case of reminiscence). All these processes are at once corporeal and psychical, pervading the whole animated subject, and having two aspects coincident and inter-dependent, though logically distinguishable. The perfect or imperfect discrimination by the sentient soul depends upon the good or bad condition of the bodily sentient organs ; an old man

* Aristot. De Animâ, I. i. p. 403, a. 30.

^b Ibid. iv. p. 408, b. 12. τὸ δὲ λέγειν ὀργίσεσθαι τὴν ψυχὴν ὁμοίον κἀν εἴ τις λέγοι τὴν ψυχὴν ὑφαίνειν ἢ οἰκοδομεῖν· βέλτιον γὰρ ἴσως μὴ λέγειν τὴν ψυχὴν ἐλεεῖν ἢ μαυθάνειν ἢ

διανοεῖσθαι, ἀλλὰ τὸν ἄνθρωπον τῇ ψυχῇ· τοῦτο δὲ μὴ ὡς ἐν ἐκείνῃ τῆς κινήσεως οὕσης, ἀλλ' ὅτε μὲν μέχρι ἐκείνης, ὅτε δ' ἀπ' ἐκείνης, &c. Again, b. 30 : ὅτι μὲν οὖν οὐχ οἷόν τε κινεῖσθαι τὴν ψυχὴν, φανερόν ἐκ τούτων.

that has become shortsighted would see as well as before, if he could regain his youthful eye. The defects of the soul arise from defects in the bodily organism to which it belongs, as in cases of drunkenness or sickness; and this is not less true of the *Noûs*, or intellective soul, than of the sentient soul.^a Intelligence, as well as emotion, are phenomena, not of the bodily organism simply, nor of the *Noûs* simply, but of the community or partnership of which both are members; and, when intelligence gives way, this is not because the *Noûs* itself is impaired, but because the partnership is ruined by the failure of the bodily organism.

Respecting the *Noûs* (the theorizing *Noûs*), we must here observe that Aristotle treats it as a separate kind or variety of soul, with several peculiarities. We shall collect presently all that he says upon that subject, which is the most obscure portion of his psychology.

In regard to soul generally, the relative point of view with body as the correlate is constantly insisted on by Aristotle; without such correlate his assertions would have no meaning. But the relation between them is presented in several different ways. The soul is the cause and principle of a living body;^b by which is meant, not an independent and pre-existent something that brings the body into existence but, an immanent or indwelling influence which sustains the unity and guides the functions of the organism. According to the quadruple classification of Cause recognized by Aristotle—Formal, Material, Movent, and Final—the body furnishes the Material Cause, while the soul comprises all the three others. The soul is (as we

^a Aristot. *De Animâ*, I. iv. p. 408, b. 26. Compare a similar doctrine in the *Timæus* of Plato, p. 86, B.-D.

^b Aristot. *De Animâ*, II. iv. p. 415,

b. 7: ἔστι δ' ἡ ψυχὴ τοῦ ζῶντος σώματος αἰτία καὶ ἀρχή· ταῦτα δὲ πολλαχῶς λέγεται.

have already seen) the Form in relation to the body as Matter, but it is, besides, the Movent, inasmuch as it determines the local displacement as well as all the active functions of the body—nutrition, growth, generation, sensation, &c.; lastly, it is also the Final Cause, since the maintenance and perpetuation of the same Form, in successive individuals, is the standing purpose aimed at by each body in the economy of Nature.* Under this diversity of aspect, soul and body are reciprocally integrant and complementary of each other, the real integer (the Living or Animated Body) including both.

Soul, in the Aristotelian point of view—what is common to all living bodies, comprises several varieties. But these varieties are not represented as forming a genus with co-ordinate species under it, in such manner that the counter-ordinate species, reciprocally excluding each other, are, when taken together, co-extensive with the whole genus; like man and brute in regard to animal. The varieties of soul are distributed into successive stages gradually narrowing in extension and enlarging in comprehension; the first or lowest stage being co-extensive with the whole, but connoting only two or three simple attributes; the second, or next above, connoting all these and more besides, but denoting only part of the individuals denoted by the first; the third connoting all this and more, but denoting yet fewer individuals; and so on forward. Thus the concrete individuals, called living bodies, include all plants as well as all animals; but the soul, called Nutritive by Aristotle, corresponding thereto connotes only nutrition, growth, decay, and generation of another similar individual.^b In the second stage, plants

* Aristot. De Animâ, II. iv. p. 415, | Plantis, p. 815, b. 16, it is stated
b. 1. | that Empedokles, Anaxagoras, and

^b In the Aristotelian treatise De | Demokritus, all affirmed that plants

are left out, but all animals remain : the Sentient soul, belonging to animals, but not belonging to any plants, connotes all the functions and faculties of the Nutritive soul, together with sensible perception (at least in its rudest shape) besides.^a We proceed onward in the same direction, taking in additional faculties—the Movent, Appetitive, Phantastic (Imaginative), Noëtic (Intelligent) soul, and thus diminishing the total of individuals denoted. But each higher variety of soul continues to possess all the faculties of the lower. Thus the Sentient soul cannot exist without comprehending all the faculties of the Nutritive, though the Nutritive exists (in plants) without any admixture of the Sentient. Again, the Sentient soul does not necessarily possess either memory, imagination, or intellect (Noûs); but no soul can be either Imaginative or Noëtic, without being Sentient as well as Nutritive. The Noëtic Soul, as the highest of all, retains in itself all the lower faculties; but these are found to exist apart from it.^b

We may remark here that the psychological classification of Aristotle proceeds in the inverse direction to that of Plato. In the Platonic *Timæus* we begin with the grand soul of the Kosmos, and are conducted by successive steps of degradation to men, animals, plants; while Aristotle lays his foundation in the largest, most multiplied, and lowest range of individuals, carrying us by successive increase of conditions to the fewer and the higher.

The lowest or Nutritive soul, in spite of the small number of conditions involved in it, is the indispensable

had both intellect and cognition up to a certain moderate point. We do not cite this treatise as the composition of Aristotle, but it is reasonably good evidence in reference to the

doctrine of those other philosophers.

^a Aristot. *De Animâ*, I. v. p. 411, b. 28.

^b *Ibid.* II. ii. p. 413, a. 25-30, b. 32; iii. p. 414, b. 29; p. 415, a. 10.

basis whereon all the others depend. None of the other souls can exist apart from it.^a It is the first constituent of the living individual—the implication of Form with Matter in a natural body suitably organized; it is the preservative of the life of the individual, with its aggregate of functions and faculties, and with the proper limits of size and shape that characterize the species;^b it is, moreover, the preservative of perpetuity to the species, inasmuch as it prompts and enables each individual to generate and leave behind a successor like himself; which is the only way that an individual can obtain quasi-immortality, though all aspire to become immortal.^c This lowest soul is the primary cause of digestion and nutrition. It is cognate with the celestial heat, which is essential also as a co-operative cause; accordingly, all animated bodies possess an inherent natural heat.^d

We advance upwards now from the nutritive soul to that higher soul which is at once nutritive and Sentient; for Aristotle does not follow the example of Plato in recognizing three souls to one body, but assigns only one and the same soul, though with multiplied faculties and functions, to one and the same body. Sensible perception, with its accompaniments, forms the characteristic privilege of the animal as contrasted with the plant.^e

^a Aristot. de Animâ, II. iv. p. 415, a. 24: πρώτη καὶ κοινοτάτη δύναμις ἐστὶ ψυχῆς, καθ' ἣν ὑπάρχει τὸ ζῆν ἅπασιν.—p. 415, b. 8: τοῦ ζώοντος σώματος αἰτία καὶ ἀρχή.—III. xii. p. 434, a. 22-30, b. 24. Aristot. De Respiratione, viii. p. 474, a. 30, b. 11.

^b Aristot. De Animâ, II. iv. p. 416, a. 17.

^c Ibid. p. 415, b. 2; p. 416, b. 23: ἐπεὶ δ' ἀπὸ τοῦ τέλους ἅπαντα προσ-

αγορεύειν δίκαιον, τέλος δὲ τὸ γεννῆσαι οἷον αὐτό, εἴη ἂν ἡ πρώτη ψυχὴ γεννητικὴ οἷον αὐτό. Also De Generat. Animal. II. i. p. 731, b. 33.

^d Aristot. De Animâ, II. iv. p. 416, a. 10-18, b. 29.

^e Aristot. De Sensu et Sensili, i. p. 436, b. 12. He considers sponges to have some sensation (Hist. Animal. I. i. p. 487, b. 9).

Sensible perception admits of many diversities, from the simplest and rudest tactile sensation, which even the lowest animals cannot be without, to the full equipment of five senses which Aristotle declares to be a maximum not susceptible of increase.* But the sentient faculty, even in its lowest stage, indicates a remarkable exaltation of the soul in its character of form. The soul, *quâ* sentient and percipient, receives the form of the *perceptum* without the matter; whereas the nutritive soul cannot disconnect the two, but receives and appropriates the nutrient substance, form and matter in one and combined.^b Aristotle illustrates this characteristic feature of sensible perception by recurring to his former example of the wax and the figure. Just as wax receives from a signet the impression engraven thereon, whether the matter of the signet be iron, gold, stone, or wood; as the impression stamped has no regard to the matter, but reproduces only the figure engraven on the signet, the wax being merely potential and undefined, until the signet comes to convert it into something actual and definite;^c so the percipient faculty in man is impressed by the substances in nature, not according to the matter of each but, according to the qualitative form of each. Such passive receptivity is the first and lowest form of sensation,^d not having any magnitude in itself, but

* Aristot. De Animâ, II. iii. p. 414, b. 2; p. 415, a. 3; III. i. p. 424, b. 22; xiii. p. 435, b. 15.

^b Ibid. II. xii. p. 424, a. 32-b. 4: διὰ τί ποτε τὰ φυτὰ οὐκ αἰσθάνεται, ἔχοντά τι μόριον ψυχικὸν καὶ πάσχοντά τι ὑπὸ τῶν ἀπτόν; καὶ γὰρ φύχεται καὶ θερμαίνεται· αἴτιον γὰρ τὸ μὴ ἔχειν μεσότητά, μηδὲ τοιαύτην ἀρχὴν οἷαν τὰ εἶδη δέχεσθαι τῶν

αἰσθητῶν, ἀλλὰ πάσχειν μετὰ τῆς ὕλης.

Themistius ad loc. p. 144, ed. Spengel: πάσχει (τὰ φυτὰ) συνεισιούσης τῆς ὕλης τοῦ ποιούντος, &c.

* Aristot. De Animâ, II. xii. p. 424, a. 19.

^d Ibid. a. 24: αἰσθητήριον δὲ πρῶτον ἐν ᾧ ἡ τοιαύτη δύναμις, &c.—III. xii. p. 434, a. 29.

residing in bodily organs which have magnitude, and separable from them only by logical abstraction. It is a potentiality, correlating with, and in due proportion to, the exterior *percipibile*, which, when acting upon it, brings it into full actuality. The actuality of both (*percipiens* and *perceptum*) is one and the same, and cannot be disjoined in fact, though the potentialities of the two are distinct yet correlative; the *percipiens* is not like the *percipibile* originally, but becomes like it by being thus actualized.*

The sentient soul is communicated by the male parent in the act of generation,^b and is complete from the moment of birth, not requiring a process of teaching after birth; the sentient subject becomes at once and instantly, in regard to sense, on a level with one that has attained a certain actuality of cognition, but is not at the moment reflecting upon the *cognitum*. Potentiality and Actuality are in fact distinguishable into lower and higher degrees; the Potential that has been actualized in a first or lower stage, is still a Potential relatively to higher stages of Actuality.^c The Potential may be acted upon in two opposite ways; either by deadening and extinguishing it, or by de-

* Aristot. De Animâ, III. ii. p. 425, b. 25: ἡ δὲ τοῦ αἰσθητοῦ ἐνέργεια καὶ τῆς αἰσθήσεως ἡ αὐτὴ μὲν ἐστὶ καὶ μία, τὸ δ' εἶναι οὐ ταῦτόν αὐταῖς.—II. v. p. 418, a. 3: τὸ δ' αἰσθητικὸν δυνάμει ἐστὶν οἷον τὸ αἰσθητὸν ἤδη ἐντελεχεία, —πάσχει μὲν οὖν οὐχ ὁμοιον δυν, πεπονθὸς δ' ὁμοίωται καὶ ἔστιν οἷον ἐκείνο. Also p. 417, a. 7, 14, 20.

There were conflicting doctrines current in Aristotle's time: some said that, for an agent to act upon a patient, there must be *likeness* between the two; others said that there must be

unlikeness. Aristotle dissents from both, and adopts a sort of intermediate doctrine.

^b Aristot. De Gener. Animal. II. v. p. 741, a. 13, b. 7; De Animâ, II. v. p. 417, b. 17.

^c Aristot. De Animâ, II. v. p. 417, b. 18-32. See above, p. 185, note.

The extent of Potentiality, or the partial Actuality, which Aristotle claims for the sentient soul even at birth, deserves to be kept in mind; we shall contrast it presently with what he says about the *Noûs*.

veloping and carrying it forward to realization. The sentient soul, when asleep or inert, requires a cause to stimulate it into actual seeing or hearing; the noëtic or cognizant soul, under like circumstances, must also be stimulated into actual meditation on its *cognitum*. But there is this difference between the two. The sentient soul communes with particulars; the noëtic soul with universals. The sentient soul derives its stimulus from without, and from some of the individual objects, tangible, visible, or audible; but the noëtic soul is put into action by the abstract and universal, which is in a certain sense *within* the soul itself; so that a man can at any time meditate on what he pleases, but he cannot see or hear what he pleases, or anything except such visible or audible objects as are at hand.*

We have already remarked, that in many animals the sentient soul is little developed; being confined in some to the sense of touch (which can never be wanting),^b and in others to touch and taste. But even this minimum of sense—though small, if compared with the variety of senses in man—is a prodigious step in advance of plants; it comprises a certain cognition, and within its own sphere it is always critical, comparing, discriminative.^c The sentient soul possesses this discriminative faculty in common with the noëtic soul or Intelligence, though applied to different objects and purposes; and possesses such faculty, because it is itself

* Aristot. De Animâ, II. v. p. 417, b. 22: αἴτιον δὲ ὅτι τῶν καθ' ἑκάστων ἢ κατ' ἐνέργειαν αἰσθησις, ἢ δ' ἐπιστήμη τῶν καθόλου· ταῦτα δ' ἐν αὐτῇ πῶς ἐστὶ τῇ ψυχῇ. III. iii. p. 427, b. 18.

^b Ibid. III. xii. p. 434,] b. 23: φανερόν ὅτι οὐχ οἷόν τε ἀνευ ἀφῆς εἶναι ζῶον.

^c Ibid. ix. p. 432, a. 16: τῷ κριτικῷ, ὃ διανοίας ἔργον ἐστὶ καὶ αἰσθήσεως.—III. iii. p. 427, a. 20; p. 426, b. 10-15. De Generat. Animal. I. xxiii. p. 731, a. 30-b. 5; De Somno et Vigil. i. p. 458, b. 2. The sentient faculty is called δύναμις σύμφυτον κριτικὴν in Analyt. Poster. II. xix. p. 99, b. 35.

a mean or middle term between the two sensible extremes of which it takes cognizance,—hot and cold, hard and soft, wet and dry, white and black, acute and grave, bitter and sweet, light and darkness, visible and invisible, tangible and intangible, &c. We feel no sensation at all when the object touched is exactly of the same temperature with ourselves, neither hotter nor colder; the sentient soul, being a mean between the two extremes, is stimulated to assimilate itself for the time to either of them, according as it is acted upon from without. It thus makes comparison of each with the other, and of both with its own mean.^a Lastly, the sentient faculty in the soul is really one and indivisible, though distinguishable logically or by abstraction into different genera and species.^b Of that faculty the central physical organ is the heart, which contains the congenital or animal spirit. The Aristotelian psychology is here remarkable, affirming as it does the essential relativity of all phenomena of sense to the appreciative condition of the sentient; as well as the constant implication of intellectual and discriminative comparison among them.

All the objects generating sensible perception, are magnitudes.^c Some perceptions are peculiar to one sense alone, as colour to the eye, &c. Upon these we never make mistakes directly; in other words, we

^a Aristot. De Animâ, II. x. p. 422, a. 20; ix. p. 421, b. 4-11; xi. p. 424, a. 5: καὶ διὰ τοῦτο κρίνει τὰ αἰσθητά—τὸ γὰρ μέσον κριτικόν. III. vii. p. 431, a. 10: ἔστι τὸ ἡδεσθαι καὶ λυπεῖσθαι τὸ ἐνεργεῖν τῇ αἰσθητικῇ μεσότητι πρὸς τὸ ἀγαθὸν ἢ κακόν, ἢ τοιαῦτα. III. xiii. p. 435, a. 21.

He remarks that plants have no similar μεσότης—II. xii. p. 424, b. 1.

^b Aristot. De Sensu et Sensili, vii. p. 449, a. 8, 17. De Motu Animal. x. p. 703, a. 15. De Somno et Vigil. ii. p. 455, a. 15, 21, 35; p. 456, a. 5. De Juventute et Senect. p. 467, b. 27; p. 469, a. 4-12.

^c Aristot. De Sensu et Sensili, vii. p. 449, a. 20: τὸ αἰσθητὸν πᾶν ἐστὶ μέγεθος.

always judge rightly what is the colour or what is the sound, though we are often deceived in judging what the thing coloured is, or where the sonorous object is.^a There are, however, some perceivables not peculiar to any one sense alone, but appreciable by two or more; though chiefly and best by the sense of vision; such are motion, rest, number, figure, magnitude. Here the appreciation becomes less accurate, yet it is still made directly by sense.^b But there are yet other matters that, though not directly affecting sense, are perceived indirectly, or by way of accompaniment to what is directly perceived. Thus we see a white object; nothing else affecting our sense except its whiteness. Beyond this, however, we judge and declare, that the object so seen is the son of Kleon. This is a judgment obtained indirectly, or by way of accompaniment; by *accident*, so to speak, inasmuch as the same does not accompany all sensations of white. It is here that we are most liable to error.^c

Among the five senses, Aristotle distinguishes two as operating by direct contact between subject and object (touch, taste); three as operating through an external intervening medium (vision, smell, taste). He begins with Vision, which he regards as possessing most completely the nature and characteristics of a sense.^d The direct and proper object of vision is colour. Now colour operates upon the eye not imme-

^a Aristot. De Animâ, II. vi. p. 418, a. 10-16.

^b Aristot. De Sensu et Sensili, i. p. 437, a. 8; iv. p. 442, b. 4-12. He says in this last passage, that the common perceivables are appreciable *at least by both sight and touch*—if not by all the senses.

^c Aristot. De Animâ, II. vi. p. 418,

a. 7-25: λέγεται δὲ τὸ αἰσθητὸν τριχῶς, ὃν δύο μὲν καθ' αὐτά φαμεν αἰσθάνεσθαι, τὸ δὲ ἐν κατὰ συμβεβηκός. Also, III. i. p. 425, b. 24; iii. p. 428, b. 18-25.

^d Aristot. De Animâ, III. iii. p. 429, a. 2: ἡ ὄψις μάλιστα αἰσθησίς ἐστιν. Also Metaphysica, A. init.

diately (for, if the coloured object be placed in contact with the eye, there will be no vision), but by causing movements or perturbations in the external intervening medium, air or water, which affect the sense through an appropriate agency of their own.^a This agency is, according to Aristotle, the Diaphanous or Transparent. When actual or in energy, the transparent is called light; when potential or in capacity only, it is called darkness. The eye is of watery structure, apt for receiving these impressions.^b It is the presence either of fire, or of something analogous to the celestial body, that calls forth the diaphanous from the state of potentiality into that of actuality or light; in which latter condition it is stimulated by colour. The diaphanous, whether as light or as darkness, is a peculiar nature or accompaniment, not substantive in itself, but inherent chiefly in the First or Celestial Body, yet also in air, water, glass, precious stones, and in all bodies to a greater or less degree.^c The diaphanous passes at once and simultaneously, in one place as well as in another, from potentiality to actuality—from darkness to light. Light does not take time to travel from one place to another, as sound and smell do.^d The

^a Aristot. De Animâ, II. vii. p. 419, a. 12, 14, 19; Aristot. De Sensu et Sensili, iii. p. 440, a. 18: ὥστ' εὐθὺς κρείττον φάναι, τῷ κινεῖσθαι τὸ μεταξὺ τῆς αἰσθήσεως ὑπὸ τοῦ αἰσθητοῦ γίνεσθαι τὴν αἴσθησιν, ἀφῇ καὶ μὴ ταῖς ἀπορροαῖς.—Ib. ii. p. 438, b. 3: εἴτε φῶς εἴτ' ἀήρ ἐστὶ τὸ μεταξὺ τοῦ ὁρωμένου καὶ τοῦ ὀφθαλμοῦ, ἢ διὰ τοῦτου κίνησις ἐστὶν ἡ ποιοῦσα τὸ δρᾶν.

^b Aristot. De Animâ, II. vii. p. 419, a. 9: τοῦτο γὰρ ἦν αὐτῷ τὸ χρώματι εἶναι, τὸ κινητικῶς εἶναι τοῦ κατ' ἐνέργειαν διαφανοῦς· ἢ δ' ἐντελέχεια τοῦ διαφανοῦς φῶς ἐστίν.—Ib. p. 418, b. 11-17: ὅταν ᾗ ἐντελεχεία διαφανὲς

ὑπὸ πυρὸς ἢ τοιοῦτου οἷον τὸ ἄνω σῶμα—πυρὸς ἢ τοιοῦτου τινὸς παρουσία ἐν τῷ διαφανεί.

^c Aristot. De Animâ, II. vii. p. 418, b. 4. De Sensu et Sensili, ii. p. 438, a. 14, b. 7; iii. p. 439, a. 21, seq.: δὲ λέγομεν διαφανές, οὐκ ἔστιν ἴδιον αἶρος ἢ ὕδατος, οὐδ' ἄλλου τῶν οὕτω λεγομένων σωμάτων, ἀλλὰ τίς ἐστὶ κοινὴ φύσις καὶ δύναμις, ἡ χωριστῇ μὲν οὐκ ἔστιν, ἐν τοῖσι δ' ἐστὶ, καὶ τοῖς ἄλλοις σώμασιν ἐνυπάρχει, τοῖς μὲν μᾶλλον τοῖς δ' ἧττον.

^d Aristot. De Sensu et Sensili, vi. p. 446, a. 23, seq., b. 27: τῷ εἶναι γὰρ τι φῶς ἐστίν, ἀλλ' οὐ κίνησις

diaphanous is not a body, nor effluvium from a body, nor any one of the elements: it is of an adjective character—a certain agency or attribute pervading or belonging to bodies, along with their extension.^a Colour marks and defines the surface of the body *quâ* diaphanous, as figure defines it *quâ* extended. Colour makes the diaphanous itself visible, and its own varieties visible through the diaphanous. Air and water are transparent throughout, though with an ill-defined superficial colour. White and black, as colours in solid bodies, correspond to the condition of light or darkness in air. There are some luminous objects visible in the dark, as fire, fungous matter, eyes, and scales of fish, &c., though they have no appropriate colour.^b There are seven species or varieties of colours, but all of them proceed from white and black, blended in different proportions, or seen one through another; white and black are the two extremes, the other varieties being intermediate between them.

The same necessity for an intervening medium external to the subject, as in the case of vision, prevails also in the senses of hearing and smell. If the audible or odorous object be placed in contact with its organ of sense, there will be no hearing or smell. Whenever we hear or smell any object, there must be interposed

τις. Empedokles affirmed that light travelling from the Sun reached the intervening space before it came to the earth; Aristotle contradicts him.

^a Aristot. De Animâ, II. vii. p. 418, b. 18: ἔστι δὲ τὸ σκότος στέρησις τῆς τοιαύτης ἔξωθεν ἐκ διαφανοῦς, ὥστε δῆλον ὅτι καὶ ἡ τούτου παρουσία φῶς ἐστίν.—Aristot. De Sensu et Sensili, iii. p. 439, a. 26: ἡ μὲν οὖν τοῦ φωτὸς φύσις ἐν ἀόριστῳ τῇ διαφανεί ἐστίν.

τοῦ δ' ἐν τοῖς σώμασι διαφανοῦς τὸ ἔσχατον, ὅτι μὲν εἴη αὖ τι, δῆλον· ὅτι δὲ τοῦτο ἐστὶ τὸ χρῶμα, ἐκ τῶν συμβαινόντων φανερόν.—ἔστι μὲν γὰρ ἐν τῇ τοῦ σώματος πέρατι, ἀλλ' οὐ τι τὸ τοῦ σώματος πέρας, ἀλλὰ τὴν αὐτὴν φύσιν δεῖ νομίζειν, ἥπερ καὶ ἔξω χρωματίζεται, ταύτην καὶ ἐντός.

^b Aristot. De Animâ, II. vii. p. 419, a. 2-25; Aristot. De Sensu et Sensili, iv. p. 442, a. 20,—seven colours.

between us and the object a suitable medium that shall be affected first; while the organ of sense will be affected secondarily through that medium. Air is the medium in regard to sound, both air and water in regard to smell; but there seems besides (analogous to the transparent in regard to vision) a special agency called the Trans-Sonant, which pervades air and enables it to transmit sound; and certainly another special agency called the Trans-Olfacient, which pervades both air and water, and enables them to transmit smell.* (It seems thus that something like a luminiferous ether—extended, mobile, and permeating bodies, yet still incorporeal in itself—was an hypothesis as old as Aristotle; and one other ether besides, analogous in property and purpose—an odoriferous ether; perhaps a third or soniferous ether, but this is less distinctly specified by Aristotle.)

Sound, according to Aristotle, arises from the shock of two or more solid bodies communicated to the air. It implies local movement in one at least of those bodies. Many soft bodies are incapable of making sound; those best suited for it are such as metals, hard in structure, smooth in surface, hollow in shape. The blow must be smart and quick, otherwise the air slips away and dissipates itself before the sound can be communicated to it.^b Sound is communicated through the

* Aristot. De Animâ, II. vii. p. 419, a. 25-35; De Sensu et Sensili, v. p. 442, b. 30; Themistius ad Aristot. De Animâ, II. vii., viii. p. 115, Spengel. Of the three names, τὸ διαφανές—τὸ δηχές—τὸ δίοσμον, the two last are not distinctly stated by Aristotle, but are said to have been first applied by Theophrastus after him. See the notes of Trendelenburg and Torstrick; the latter supposes Themistius to have

had before him a fuller and better text of Aristotle than that which we now possess, which seems corrupt. In our present text, the transparent as well as the trans-olfacient ether are clearly indicated, the trans-sonant not clearly.

^b Aristot. De Animâ, II. viii. p. 419, b. 4 seq. He calls air ψαθυρός, εὐθρυπτός (p. 420, a. 1-8),—εὐδαίπετος, εὐόλισθος (Themistius, pp.

air to the organ of hearing; the air is one *continuum* (not composed of adjacent particles with interspaces), and a wave is propagated from it to the internal ear, which contains some air enclosed in the sinuous ducts within the membrane of the tympanum, congenitally attached to the organ itself, and endued with a certain animation.^a This internal air within the ear, excited by the motion propagated from the external ear, causes hearing. The ear is enabled to appreciate accurately the movements of the external air, because it has itself little or no movement within. We cannot hear with any other part of the body; because it is only in the ear that nature has given us this stock of internal air. If water gets into the ear, we cannot hear at all; because the wave generated in the air without, cannot propagate itself within. Nor can we hear, if the membrane of the ear be disordered; any more than we can see, when the membrane of the eye is disordered.^b

Voice is a kind of sound peculiar to animated beings; yet not belonging to all of them, but only to those that inspire the air. Nature employs respiration for two

116, 117, Sp.)—"quod facile diffluit" (Trendelenburg, Comm. p. 384). He says that for sonorous purposes air ought to be *ἀθροῦν*—compact or dense: sound reverberates best from metals with smooth surface, p. 420, a. 25.

^a Aristot. De Animâ, II. viii. p. 419, b. 34 seq.: οὗτος δ' (ὁ ἀήρ) ἐστὶν ὁ ποιῶν ἀκούειν, ὅταν κινηθῇ συνεχῆς καὶ εἷς.—ψοφητικὸν μὲν οὖν τὸ κινητικὸν ἐνὸς ἀέρος συνεχείᾳ μέχρις ἀκοῆς. ἀκοῇ δὲ συμφυῆς ἀήρ· διὰ δὲ τὸ ἐν ἀέρι εἶναι, κινουμένου τοῦ ἔξω τὸ εἶσω κινεῖ. διόπερ οὐ πάντῃ τὸ ζῶον ἀκούει, οὐδὲ πάντῃ διέρχεται ὁ ἀήρ· οὐ γὰρ πάντῃ ἔχει

ἀέρα τὸ κινησόμενον μέρος καὶ ἔμψυχον.—διὰ τὰς ἑλικας (p. 420, a. 13).

The text of this passage is not satisfactory. It has been much criticised as well as amended by Torstrick; see his Comment. p. 148 seq. I cannot approve his alteration of ἔμψυχον into ἔμψοφον.

^b Aristot. De Animâ, II. viii. p. 420, a. 9: ὁ δ' ἐν τοῖς ὥσιν ἐγκατακοδόμηται πρὸς τὸ ἀκίνητος εἶναι, ὅπως ἀκριβῶς αἰσθάνηται πάσας τὰς διαφορὰς τῆς κινήσεως.—p. 420, a. 14. οὐδ' (ἀκούομεν) ἂν ἡ μήνιγξ κάμῃ, ὥσπερ τὸ ἐπὶ τῇ κόρῃ δέρμα ὅταν κάμῃ.

purposes: the first, indispensable to animal life,—that of cooling and tempering the excessive heat of the heart and its adjacent parts; the second, not indispensable to life, yet most valuable to the higher faculties of man,—significant speech. The organ of respiration is the larynx; a man cannot speak either when inspiring or expiring, but only when retaining and using the breath within. The soul in those parts, when guided by some phantasm or thought, impels the air within against the walls of the trachea, and this shock causes vocal sounds.*

Aristotle seems to have been tolerably satisfied with the above explanation of sight and hearing; for, in approaching the sense of Smell with the olfacients, he begins by saying that it is less definable and explicable. Among the five senses, smell stands intermediate between the two (taste and touch) that operate by direct contact, and the other two (sight and hearing) that operate through an external medium. Man is below other animals in this sense; he discriminates little in smells except the pleasurable and the painful.^b His taste, though analogous in many points to smell, is far more accurate and discriminating, because taste is a variety of touch; and in respect to touch man is the most discriminating of all animals. Hence his great superiority to them in practical wisdom. Indeed the marked difference of intelligence between one man and another,

* Aristot. De Animâ, II. viii. p. 420, b. 5-p. 421, a. 6. ὥστε ἡ πληγὴ τοῦ ἀναπνεομένου αἵματος ὑπὸ τῆς ἐν τοῦτοις τοῖς μορίοις ψυχῆς πρὸς τὴν καλουμένην ἀρτηρίαν φωνὴ ἐστίν. οὐ γὰρ πᾶς ζῶον ψόφος φωνή, καθάπερ εἵπομεν (ἐστὶ γὰρ καὶ τῇ γλώττῃ ψοφεῖν καὶ ὡς οἱ βήπτοντες) ἀλλὰ δεῖ ἔμφυχόν τε εἶναι τὸ τύπτον καὶ μετὰ

φαντασίας τινός· σημαντικὸς γὰρ δὴ τις ψόφος ἐστὶν ἢ φωνή· καὶ οὐ τοῦ ἀναπνεομένου αἵματος, ὥσπερ ἡ βήξ, ἀλλὰ τοῦτ' αὐτὸς τὸν ἐν τῇ ἀρτηρίᾳ πρὸς αὐτήν.

^b Aristot. De Animâ, II. ix. p. 421, a. 7. De Sensu et Sensili, v. p. 445, a. 6; iv. p. 441, a. 1. De Partibus Animal. II. xii. p. 656, a. 31; p. 657, a. 9.

turns mainly upon the organ of touch : men of hard flesh (or skin) are by nature dull in intelligence, men of soft flesh are apt and clever.* The classifying names of different smells are borrowed from the names of the analogous tastes to which they are analogous—sweet, bitter, tart, dry, sharp, smooth, &c.^b Smells take effect through air as well as through water ; by means of a peculiar agency or accompaniment (mentioned above, called the Trans-Olfacient) pervading both one and the other. It is peculiar to man that he cannot smell except when inhaling air in the act of inspiration ; any one may settle this for himself by making the trial.^c But fishes and other aquatic animals, which never inhale air, can smell in the water ; and this proves that the trans-olfacient agency is operative to transmit odours not less in water than in air.^d We know that the sense of smell in these aquatic animals is the same as it is in man, because the same strong odours that are destructive to man are also destructive to them.^e Smell is the parallel, and in a certain sense the antithesis of taste ; smell is of the dry, taste is of the moist : the olfactory matter is a juicy or sapid dryness, extracted or washed out from both air and water by the trans-olfacient agency, and acting on the sensory potentialities of the nostrils.^f This

* Aristot. De Animâ, II. ix. p. 421, a. 21 : κατὰ δὲ τὴν ἀφήν πολλῶ τῶν ἄλλων ζῶων διαφερόντως ἀκριβοῖ (ὁ ἄνθρωπος). διὸ καὶ φρονιμώτατόν ἐστι τῶν ζῶων. σημείον δὲ τὸ καὶ ἐν τῇ γένει τῶν ἀνθρώπων παρὰ τὸ αἰσθητήριον τοῦτο εἶναι εὐφρεῖς καὶ ἀφρεῖς, παρ' ἄλλο δὲ μηδὲν οἱ μὲν γὰρ σκληρόσαρκοι ἀφρεῖς τὴν διάνοιαν, οἱ δὲ μαλακόσαρκοι εὐφρεῖς.

^b Ibid. a. 26.

^c Ibid. b. 9-19. τὸ ἀνευ τοῦ ἀνα-

πνεῖν μὴ αἰσθάνεσθαι ἴδιον ἐπὶ τῶν ἀνθρώπων· δῆλον δὲ πειρωμένοις. He seems to think that this is not true of any animal other than man.

^d Aristot. De Sensu et Sensili, v. p. 443, a. 3-31 ; p. 444, b. 9.

^e Aristot. De Animâ, II. ix. p. 421, b. 23. He instances brimstone, ἀσφαλτος, &c.

^f This is difficult to understand, but it seems to be what Aristotle here means.—De Animâ, II. ix. p. 422, a. 6 : ἔστι δ' ἡ ὁσμὴ τοῦ ξηροῦ, ὥσπερ

olfactory inhalation is warm as well as dry. Hence it is light, and rises easily to the brain, the moisture and coldness of which it contributes to temper; this is a very salutary process, for the brain is the wettest and coldest part of the body, requiring warm and dry influences as a corrective. It is with a view to this correction that Nature has placed the olfactory organ in such close proximity to the brain.^a There are two kinds of olfactory impressions. One of them is akin to the sense of taste—odour and savour going together—an affection (to a great degree) of the nutritive soul; so that the same odour is agreeable when we are hungry, disagreeable when our hunger is fully satisfied. This first kind of impression is common to men with other animals; but there is a second, peculiar to man, and disconnected from the sense of taste, viz., the scent of flowers, unguents, &c., which are agreeable or disagreeable constantly and *per se*.^b Nature has assigned this second kind of odours as a privilege to man, because his brain, being so large and moist, requires to be tempered by an additional stock of drying and warming olfactory influence.

ὁ χυμὸς τοῦ ὑγροῦ· τὸ δ' ὀσφραντικὸν αἰσθητήριον δυνάμει τοιοῦτον. — De Sensu et Sensili, v. p. 443, a. 1-9: ἔστι δ' ὀσφραντὸν οὐχ ἢ διαφανές, ἀλλ' ἢ πλυντικὸν ἢ ῥυπτικὸν ἐγχύμου ξηρότητος.—ἡ ἐν ὑγρῷ τοῦ ἐγχύμου ξηροῦ φύσις ὁσμή, καὶ ὀσφραντὸν τὸ τοιοῦτον· ὅτι δ' ἅπαν χυμοὺ ἐστὶ τὸ πάθος, δῆλον ἐκ τῶν ἐχόντων καὶ μὴ ἐχόντων ὁσμὴν, &c. Also p. 443, b. 3-7.

In the treatise De Sensu et Sensili, there is one passage (ii. p. 438, b. 24), wherein Aristotle affirms that smell is *καπνώδης ἀναθυμίασις, ἐκ πυρός*; but we also find a subsequent passage

(v. p. 443, a. 21, seq.) where he cites that same doctrine as the opinion of others, but distinctly refutes it.

^a Aristot. De Sensu et Sensili, v. p. 444, a. 10, 22, 24: ἡ γὰρ τῆς ὁσμῆς δύναμις θερμὴ τὴν φύσιν ἐστίν.

^b Ibid. p. 443, b. 17; p. 444, a. 6, 15, 28: ἴδιον δὲ τῆς τοῦ ἀνθρώπου φύσεώς ἐστὶ τὸ τῆς ὁσμῆς τῆς τοιαύτης γένος διὰ τὸ πλεῖστον ἐγκέφαλον καὶ ὑγρότατον ἔχειν τῶν ζώων ὡς κατὰ μέγεθος.

Plato also reckons the pleasures of smell among the pure and admissible pleasures (Philebus, p. 51, E.; Timæus, p. 65, A., p. 67, A.).

Taste is a variety of touch, and belongs to the lower or nutritive soul, as a guide to the animal in seeking or avoiding different sorts of food. The object of taste is essentially liquid, often strained and extracted from dry food by warmth and moisture. The primary manifestation of this sensory phenomenon is the contrast of drinkable and undrinkable.^a The organ of taste, the tongue, is a mean between dryness and moisture; when either of these is in excess, the organ is disordered. Among the varieties of taste, there are two fundamental contraries (as in colour, sound, and the objects of the other senses except touch) from which the other contrasts are derived. These fundamentals in taste are sweet and bitter; corresponding to white and black, acute and grave, in colours and sounds. The sense of taste is potentially sweet or bitter; the gustable object is what makes it sweet or bitter in actuality.^b

The sense of Touch, in which man surpasses all other animals, differs from the other senses by not having any two fundamental contraries giving origin to the rest, but by having various contraries alike fundamental. It is thus hardly one sense, but an aggregate of several senses. It appreciates the elementary differences of body *quâ* body—hot, cold, dry, moist, hard, soft, &c. It is a mean between each of these two extremes; being potentially either one of them, and capable of being made to assimilate itself actually to either.^c In this sense, the tangible object operates when in

^a Aristot. De Animâ, II. x. p. 422, a. 30-33. De Sensu et Sensili, i. p. 436, b. 15; iv. p. 441, b. 17: διὰ τοῦ ξηροῦ καὶ γεώδους διηθούσα (ἡ φύσις) καὶ κινούσα τῷ θερμῷ ποιῶν τι τὸ ὑγρὸν παρασκευάζει. καὶ ἔστι τοῦτο χυμὸς τὸ γινόμενον ὑπὸ τοῦ εἰρημένου ξηροῦ πάθος ἐν τῷ ὑγρῷ.—Ib.

b. 24: οὐ παντὸς ξηροῦ ἀλλὰ τοῦ τροφίμου.

^b Aristot. De Animâ, II. x. p. 422, b. 5-16; II. xi. p. 422, b. 23: πᾶσά τε γὰρ αἰσθησις μιᾶς ἐναντιώσεως εἶναι δοκεῖ, &c.

^c Ibid. xi. p. 422, b. 17 seq.

contact with the skin; and, as has been already said, much of the superiority of man depends upon his superior fineness and delicacy of skin.^a Still Aristotle remarks that the true organ of touch is not the skin or flesh, but something interior to the flesh. This last serves only as a peculiar medium. The fact that the sensation arises when the object touches our skin, does not prove that the skin is the true organ; for, if there existed a thin exterior membrane surrounding our bodies, we should still feel the same sensation. Moreover, the body is not in real contact with our skin, though it appears to be so: there is a thin film of air between the two, though we do not perceive it; just as, when we touch an object under water, there is a film of water interposed between, as is seen by the wetness of the finger.^b The skin is, therefore, not the true organ of touch, but a medium between the object and the organ; and this sense does in reality agree with the other senses in having a certain medium interposed between object and organ. But there is this difference: in touch the medium is close to and a part of ourselves; in sight and hearing it is exterior to ourselves, and may extend to some distance. In sight and hearing the object does not affect us directly; it affects the external medium, which again affects us. But in touch the object affects, at the same time and by the same influence, both the medium and the interior organ; like a spear that, with the same thrust, pierces the warrior's shield and wounds the warrior himself.^c Apparently,

^a Aristot. *Histor. Animal.* I. xv. p. 494, b. 17. Man is λεπτοδερμότατος τῶν ζώων (*Aristot. De Partib. Animal.* ii. p. 657, b. 2), and has the tongue also looser and softer than any of them, most fit for variety of touch

(p. 660, a. 20) as well as for articulate speech.

^b Aristot. *De Animâ*, II. xi. p. 423, a. 25-32.

^c *Ibid.* p. 423, b. 12-17: διαφέρει τὸ ἀπὸν τῶν ὁρατῶν καὶ τῶν ψοφῶν

therefore, the true organ of touch is something interior, and skin and flesh is an interposed medium.* But what this interior organ is, Aristotle does not more particularly declare. He merely states it to be in close and intimate communication with the great central focus and principle of all sensation—the heart;^b more closely connected with the heart (he appears to think) than any of the other organs of sense, though all of them are so connected more or less closely.

Having gone through the five senses *seriatim*, Aristotle offers various reasons to prove that there neither are, nor can be, more than five; and then discusses some complicated phenomena of sense. We perceive *that* we see or hear:^c do we perceive this by sight or by hearing? and if not, by what other faculty?^d Aristotle replies by saying that the act of sense is one and the same, but that it may be looked at in two different points of view. We see a coloured object; we hear a sound: in each case the act of sense is one; the energy or actuality of the *visum* and *videns*, of the *sonans* and *audiens*, is implicated and indivisible. But the

τικῶν ὅτι ἐκείνων μὲν αἰσθανόμεθα τῷ τὸ μεταξὺ ποιεῖν τι ἡμᾶς, τῶν δὲ ἀπτῶν οὐχ ὑπὸ τοῦ μεταξὺ ἀλλ' ἅμα τῷ μεταξὺ, ὥσπερ ὁ δι' ἀσπίδος πληγείς· οὐ γὰρ ἡ ἀσπίς πληγείσα ἐπάταξεν, ἀλλ' ἅμ' ἄμφω συνέβη πληγῆναι.

This analogy of the warrior pierced at the same time with his shield illustrates Aristotle's view of the eighth Category—*Habere*: of which he gives ὥπλισται as the example. He considers a man's clothes and defensive weapons as standing in a peculiar relation to him like a personal appurtenance and almost as a part of himself. It is under this point of view that he erects *Habere* into a distinct Category.

* Aristot. De Animâ, II. xi. p. 423, b. 22-26: ἥ καὶ δῆλον ὅτι ἐντὸς τὸ τοῦ ἀπτοῦ αἰσθητικόν.—τὸ μεταξὺ τοῦ ἀπτικοῦ ἢ σάρξ.

^b Aristot. De Partibus Animal. II. x. p. 656, a. 30; De Vitâ et Morte, iii. p. 469, a. 12; De Somno et Vigil. ii. p. 455, a. 23; De Sensu et Sensili, ii. p. 439, a. 2.

^c In modern psychology the language would be—"We are conscious that we see or hear." But Sir William Hamilton has remarked that the word Consciousness has no equivalent usually or familiarly employed in the Greek psychology.

^d Aristot. De Animâ, III. ii. p. 425, b. 14.

potentiality of the one is quite distinct from the potentiality of the other, and may be considered as well as named apart.^a When we say: I perceive *that* I see—we look at the same act of vision from the side of the *videns*; the *visum* being put out of sight as the unnoticed correlate. This is a mental fact distinct from, though following upon, the act of vision itself. Aristotle refers it rather to that general sentient soul or faculty, of which the five senses are partial and separate manifestations, than to the sense of vision itself.^b He thus considers what would now be termed *consciousness of a sensation*, as being merely the subjective view of the sensation, distinguished by abstraction from the objective.

It is the same general sentient faculty, though diversified and logically distinguishable in its manifestations, that enables us to conceive many sensations as combined into one; and to compare or discriminate sensations belonging to different senses.^c

White and sweet are perceived by two distinct senses, and at two distinct moments of time; but they must be compared and discriminated by one and the same sentient or cogitant act, and at one moment of time.^d This mental act, though in itself indivisible, has yet two aspects, and is thus in a certain sense divisible; just as a point taken in the middle of a line, while

^a Aristot. De Animâ, III. ii. p. 425, b. 26; p. 426, a. 16-19.

^b Aristot. De Somno et Vigil. ii. p. 455, a. 12-17; De Animâ, III. ii. with Torstrick's note, p. 166, and the exposition of Alexander of Aphrodisias therein cited. These two passages of Aristotle are to a certain extent different, yet not contradictory, though Torstrick supposes them to be so.

^c Aristot. De Sensu et Sensili, vii. p. 449, a. 8-20.

^d Aristot. De Animâ, III. ii. p. 426, b. 17-29: οὔτε δὴ κεχωρισμένοις ἐνδέχεται κρίνειν ὅτι ἕτερον τὸ γλυκὺ τοῦ λευκοῦ, ἀλλὰ δεῖ ἐνὶ τινὶ ἀμφω δῆλα εἶναι.—δεῖ δὲ τὸ ἐν λέγειν ὅτι ἕτερον ἕτερον γὰρ τὸ γλυκὺ τοῦ λευκοῦ. — ἀχώριστον καὶ ἐν ἀχωρίστω χρόνῳ. III. vii. p. 431, a. 20.

indivisible in itself, may be looked upon as the closing terminus of one-half of the line, and as the commencing terminus of the other half. The comparison of two different sensations or thoughts is thus one and the same mental fact, with two distinguishable aspects.*

Aristotle devotes a chapter to the enquiry: whether we can perceive two distinct sensations at once (*i.e.* in one and the same moment of time). He decides that we cannot; that the sentient soul or faculty is one and indivisible, and can only have a single energy or actuality at once.^b If two causes of sensation are operative together, and one of them be much superior in force, it will render us insensible to the other. He remarks that, when we are pre-occupied with loud noise, or with deep reflection, or with intense fright, visual objects will often pass by us unseen and unnoticed.^c Often the two simultaneous sensations will combine or blend into one compound, so that we shall feel neither of them purely or separately.^d One single act of sensational energy may however have a double aspect; as the same individual object may be at once white and sweet, though its whiteness and its sweetness are logically separable.^e

To the sentient soul, even in its lowest manifestations, belong the feelings of pleasure and pain, appetite and aversion.^f The movements connected with these feelings, as with all sensation, begin and close with the

* Aristot. De Animâ, III. ii. p. 427, a. 10-14: ὥσπερ ἦν καλοῦσί τινες στιγμὴν, ἣ μὴ καὶ ἡ δύο, ταύτη καὶ ἀδιαίρετος καὶ διαίρετη· ἡ μὲν οὖν ἀδιαίρετον, ἐν τῷ κρίνόν ἐστι καὶ ἄμα, ἡ δὲ διαίρετον ὑπάρχει, οὐχ ἕν· δις γὰρ τῷ αὐτῷ χρῆται σημείῳ ἄμα.

It is to be remarked that, in explaining this mental process of comparison, Aristotle three several times

applies it both to αἰσθήσεις and to νόσεις, p. 426, b. 22-31; p. 427, a. 9.

^b Aristot. De Sensu et Sensili, vii. p. 447, a. 12.

^c Ibid. a. 15.

^d Ibid. b. 12-20.

^e Ibid. p. 449, a. 14.

^f Aristot. De Animâ, II. iii. p. 414, b. 3-16; III. vii. p. 431, a. 9; De Somno et Vigil. i. p. 454, b. 29.

central organ—the heart.* Upon these are consequent the various passions and emotions; yet not without certain faculties of memory and phantasy accompanying or following the facts of sense.

Aristotle proceeds by gradual steps upward from the Sentient soul to the Noëtic (Cogitant or Intelligent) soul, called in its highest perfection Noûs. While refuting the doctrine of Empedokles, Demokritus, and other philosophers, who considered cogitation or intelligence to be the same as sensible perception, and while insisting upon the distinctness of the two as mental phenomena, he recognizes the important point of analogy between them, that both of them include judgment and comparison;^b and he describes an intermediate stage called Phantasy or Imagination, forming the transition from the lower of the two to the higher. We have already observed that, in the Aristotelian psychology, the higher functions of the soul presuppose and are built upon the lower as their foundation, though the lower do not necessarily involve the higher. Without nutrition, there is no sense; without sense, there is no phantasy; without phantasy, there is no cogitation or intelligence.^c The higher psychical phenomena are not identical with the lower, yet neither are they independent thereof; they presuppose the lower as a part of their conditions. Here, and indeed very generally elsewhere, Aristotle has been careful to avoid the fallacy of confounding or identifying the conditions of a phenomenon with the phenomenon itself.^d

* Aristot. De Partibus Animalium, III. iv. p. 666, a. 12.

^b Aristot. De Anima, III. iii. p. 427, a. 20.

^c Ibid. b. 14: φαντασία γὰρ ἕτερον καὶ αἰσθήσεως καὶ διανοίας.—Ib. vii.

p. 431, a. 16: οὐδέποτε νοεῖ ἀνευ φαντάσματος ἢ ψυχῇ.—De Memoria et Reminiscent. i. p. 449, b. 31: νοεῖν οὐκ ἔστιν ἀνευ φαντάσματος.

^d Mill's System of Logic, Book V. ch. 3, s. 8.

He proceeds to explain Phantasy or the Phantastic department of the soul, with the phantasms that belong to it. It is not sensible perception, nor belief, nor opinion, nor knowledge, nor cogitation. Our dreams, though affections of the sentient soul, are really phantasms in our sleep, when there is no visual sensation; even when awake, we have a phantasm of the sun, as of a disk one foot in diameter, though we *believe* the sun to be larger than the earth.^a Many of the lower animals have sensible perception without any phantasy: even those among them that have phantasy have no opinion; for opinion implies faith, persuasion, and some rational explanation of that persuasion, to none of which does any animal attain.^b Phantasy is an internal movement of the animated being (body and soul in one); belonging to the sentient soul, not to the cogitant or intelligent; not identical with the movement of sense, but continued from or produced by that, and by that alone; accordingly, similar to the movement of sense and relating to the same matters.^c Since our sensible perceptions may be either true or false, so also may be our phantasms. And, since these phantasms are not only like our sensations, but remain standing in the soul long after the objects of sense have passed away, they are to a great degree the determining causes both of action and emotion. They are such habitually to animals, who are destitute of Noûs; and often even to intelligent men, if the Noûs be overclouded by disease or drunkenness.^d

^a Aristot. De Animâ, III. iii. p. 428, a. 5, b. 3; De Somno et Vig. ii. p. 456, a. 24: *κινούνται δ' ἐνιοι καθεύδοντες καὶ ποιοῦσι πολλὰ ἐγρηγορικά, οὐ μέντοι ἀνευ φαντάσματος καὶ αἰσθήσεως τινος· τὸ γὰρ ἐνύπνιον ἐστὶν αἰσθημα τρόπον τινά.*—Ibid. i.

p. 454, b. 10.

^b Aristot. De Animâ, III. iii. p. 428, a. 10, 22, 25.

^c Ibid. b. 10-15; De Somniis, i. p. 459, a. 15.

^d Aristot. De Animâ, III. iii. p. 428, b. 16: *καὶ πολλὰ κατ' αὐτὴν*

In the chapter now before us, Aristotle is careful to discriminate phantasy from several other psychological phenomena wherewith it is liable to be confounded. But we remark with some surprise, that neither here, nor in any other part of his general Psychology, does he offer any exposition of Memory, the phenomenon more nearly approaching than any other to phantasy. He supplied the deficiency afterwards by the short but valuable tract on Memory and Reminiscence; wherein he recognizes, and refers to, the more general work on Psychology. Memory bears on the past, as distinguished both from the present and future. Memory and phantasy are in some cases so alike, that we cannot distinguish clearly whether what is in our minds is a remembrance or a phantasm.* Both of them belong to the same psychological department—to the central sentient principle, and not to the cogitant or intelligent Noûs. Memory as well as phantasy are continuations, remnants, or secondary consequences, of the primary movements of sense; what in itself is a phantasm, may become an object of remembrance directly and *per se*; matters of cogitation, being included or implicated in phantasms, may also become objects of remembrance, indirectly and by way of accompaniment.^b We can remember our prior acts of cogitation and demonstration; we can remember that, a month ago, we demonstrated the three angles of a triangle to be equal to two right angles; but, as the original demonstration could not be carried on without our having before our

(i.e. κατὰ τὴν φαντασίαν) καὶ ποιεῖν καὶ πάσχειν τὸ ἔχον.—Ibid. p. 429, a. 4: καὶ διὰ τὸ ἐμμένειν καὶ ὁμοίας εἶναι (τὰς φαντασίας) ταῖς αἰσθήσεσι, πολλά κατ' αὐτὰς πράττει τὰ ζῶα, &c.

* Aristot. De Memor. et Remin. i. p. 451, a. 5; p. 449, a. 10.

^b Ibid. p. 450, a. 22: τίνας μὲν οὖν τῶν τῆς ψυχῆς ἐστὶν ἡ μνήμη, φανερόν ὅτι οὐπὲρ καὶ ἡ φαντασία καὶ ἔστι μνημονευτὰ καθ' αὐτὰ μὲν ὅσα ἐστὶ φανταστά, κατὰ συμβεβηκὸς δ' ὅσα μὴ ἀνευ φαντασίας.

mental vision the phantasm of some particular triangle, so neither can the remembrance of the demonstration be made present to us without a similar phantasm.* In acts of remembrance we have a conception of past time, and we recognize what is now present to our minds as a copy of what has been formerly present to us, either as perception of sense or as actual cognition ;^b while in phantasms there is no conception of past time, nor any similar recognition, nor any necessary reference to our own past mental states ; the phantasm is looked at by itself, and not as a copy. This is the main point of distinction between phantasm and remembrance :^c what is remembered is a present phantasm assimilated to an impression of the past. Some of the superior animals possess both memory and phantasy. But other animals have neither ; their sensations disappear, they have no endurance ; while endurance is the basis both of phantasy and memory.^d

But though some animals have memory, no animal except man has Reminiscence. Herein man surpasses them all.* Aristotle draws a marked distinction between the two ; between the (memorial) retentive and reviving functions, when working unconsciously and instinctively, and the same two functions, when stimulated and guided by a deliberate purpose of our own—

* Aristot. De Memor. et Rem. i. p. 449, b. 18.

^b Ibid. b. 22 : ἀεὶ γὰρ ὅταν ἐνεργῇ κατὰ τὸ μνημονεύειν, οὕτως ἐν τῇ ψυχῇ λέγει, ὅτι πρότερον τοῦτο ἤκουσεν ἢ ᾗσθετο ἢ ἐνόησεν.—Ibid. p. 452, b. 28.

^c Ibid. p. 450, a. 30 ; p. 451, a. 15 : τὸ μνημονεύειν, ὡς εἰκότος οὐ φάντασμα, ἔξῃς. Themistius ad Aristot. De Memoria, p. 240, ed. Spengel.

^d Aristot. Analyt. Poster. ii. p. 99, b. 36 : μόνῃ τοῦ αἰσθήματος. It may

be remarked that in the Topics Aristotle urges a dialectical objection against this or a similar doctrine (Topic. IV. iv. v. p. 125, b. 6-19), and against his own definition cited in the preceding note, where he calls μνήμη an ἔξις. Compare the first chapter of the Metaphysica.

* Aristot. De Memor. et Rem. ii. p. 453, a. 8. He draws the same distinction in Hist. Animal. I. i. p. 488, b. 26.

which he calls reminiscence. This last is like a syllogism or course of ratiocinative inference, performable only by minds capable of taking counsel and calculating. He considers memory as a movement proceeding from the centre and organs of sense to the soul, and stamping an impression thereupon; while reminiscence is a counter-movement proceeding from the soul to the organs of sense.^a In the process of reminiscence, movements of the soul and movements of the body are conjoined,^b more or less perturbing and durable according to the temperament of the individual. The process is intentional and deliberate, instigated by the desire to search for and recover some lost phantasm or cognition; its success depends upon the fact that there exists by nature a regular observable order of sequence among the movements of the system, physical as well as psychical. The consequents follow their antecedents either universally, or at least according to customary rules, in the majority of cases.^c

The consequent is either (1) like its antecedent, wholly or partially; or (2) contrary to it; or (3) has been actually felt in juxtaposition with it. In reminiscence, we endeavour to regain the forgotten consequent by hunting out some antecedent whereupon it is likely to follow; taking our start either from the present moment or from some other known point.^d We run over many phantasms until we hit upon the true ante-

^a Aristot. De Animâ, I. iv. p. 408, b. 17. De Memor. et Remin. i. p. 450, a. 30; ii. p. 453, a. 10: τὸ ἀναμνήσκεσθαι ἐστὶν οἷον συλλόγισμός τις.

^b Aristot. De Memor. et Rem. ii. p. 453, a. 14-23.

^c Ibid. p. 451, b. 10: συμβαίνουσι δ' αἱ ἀναμνήσεις, ἐπειδὴ πέφυκεν ἡ

κίνησις ἥδε γενέσθαι μετὰ τήνδε.

^d Ibid. b. 18: διὸ καὶ τὸ ἐφεξῆς θηρεύομεν νοήσαντες ἀπὸ τοῦ νῦν ἢ ἄλλου τινός, καὶ ἀφ' ὁμοίου ἢ ἐναντίου ἢ τοῦ σύνεγγυς.

About the associative property of Contraries see also De Somno et Vigil. i. p. 453, b. 27.

cedent; the possibility of reminiscence depends upon our having this within our mental reach, among our accessible stock of ideas: if such be not the case, reminiscence is impracticable, and we must learn over again.^a We are most likely to succeed, if we get upon the track or order wherein events actually occurred; thus, if we are trying to recollect a forgotten verse or sentence, we begin to repeat it from the first word; the same antecedent may indeed call up different consequents at different times, but it will generally call up what has habitually followed it before.^b

The movements of Memory and of Reminiscence are partly corporeal and partly psychical, just as those of Sensation and Phantasy are. We compare in our remembrance greater and less (either in time or in external magnitudes) through similar internal movements differing from each other in the same proportion, but all on a miniature scale.^c These internal movements often lead to great discomfort, when a person makes fruitless efforts to recover the forgotten phantasm that he desires; especially with excitable men, who are much disturbed by their own phantasms. They cannot stop the movement once begun; and, when their sensitive system is soft and flexible, they find that they have unwittingly provoked the bodily movements belonging to anger or fear, or some other painful emotion.^d These movements, when once provoked, continue in

^a Aristot. De Memor. et Rem. ii. p. 452, a. 7: πολλάκις δ' ἤδη μὲν ἀδυνατεῖ ἀναμνησθῆναι, ζητεῖν δὲ δύναται καὶ εὐρίσκει. τοῦτο δὲ γίνεται κινουῦντι πολλά, ὥς ἂν τοιαύτην κινήσῃ κίνησιν, ἣ ἀκολουθήσῃ τὸ πρᾶγμα. τὸ γὰρ μεμνησθᾶί ἐστι τὸ ἐνεῖναι δυνάμει τὴν κινουῦσαν· τοῦτο δέ, ὥστ' ἐξ αὐτοῦ καὶ ὃν ἔχει κινήσεων κινήσῃναι,

ὥσπερ εἴρηται.

^b Ibid. ii. p. 452, a. 2.

^c Ibid. b. 12: ἔστι γὰρ ἐν αὐτῇ τὰ ὅμοια σχήματα καὶ κινήσεις.— πάντα γὰρ τὰ ἐντὸς ἐλάττω, ὥσπερ ἀνάλογον καὶ τὰ ἐκτός.

^d Ibid. p. 453, a. 22: ὁ ἀναμνησόμενος καὶ θηρεύων σωματικόν. τ κινεῖ, ἐν ᾧ τὸ πάθος.

spite of the opposition of the person that experiences them. He brings upon himself the reality of the painful emotion; just as we find that, after we have very frequently pronounced a sentence or sung a song, the internal movements left in our memories are sometimes so strong and so persistent, that they act on our vocal organs even without any volition on our parts, and determine us to sing the song or pronounce the sentence over again in reality.^a Slow men are usually good in memory, quick men and apt learners are good in reminiscence: the two are seldom found together.^b

In this account of Memory and Reminiscence, Aristotle displays an acute and penetrating intelligence of the great principles of the Association of Ideas. But these principles are operative not less in memory than in reminiscence; and the exaggerated prominence that he has given to the distinction between the two (determined apparently by a wish to keep the procedure of man apart from that of animals) tends to perplex his description of the associative process. At the same time, his manner of characterizing phantasy, memory, and reminiscence, as being all of them at once corporeal and psychical—involving, like sensation, internal movements of the body as well as phases of the consciousness, sometimes even passing into external movements of the bodily organs without our volition—all this is a striking example of psychological observation, as well as of consistency in following out the doctrine laid down at the commencement of his chief treatise: Soul as the Form implicated with Body as the

^a Aristot. De Memor. et Rem. ii. p. 453, a. 28: *ἔοικε τὸ πάθος τοῖς ὀνόμασι καὶ μέλεσι καὶ λόγοις, ὅταν διὰ στόματος γίνηται τι αὐτῶν σφόδρα*

πανσαμένοις γὰρ καὶ οὐ βουλομένοις ἐπέρχεται πάλιν ᾄδειν ἢ λέγειν.

^b Ibid. i. p. 449, b. 7.

Matter,—the two being an integral concrete separable only by abstraction.

We come now to the highest and (in Aristotle's opinion) most honourable portion of the soul—the *Noûs* or *noëtic* faculty, whereby we cogitate, understand, reason, and believe or opine under the influence of reason.* According to the uniform scheme of Aristotle, this highest portion of the soul, though distinct from all the lower, presupposes them all. As the sentient soul presupposes the nutrient, so also the cogitant soul presupposes the nutrient, the sentient, the phantastic, the memorial, and the reminiscient. Aristotle carefully distinguishes the sentient department of the soul from the cogitant, and refutes more than once the doctrine of those philosophers that identified the two. But he is equally careful to maintain the correlation between them, and to exhibit the sentient faculty not only as involving in itself a certain measure of intellectual discrimination, but also as an essential and fundamental condition to the agency of the cogitant, as a portion of the human soul. We have already gone through the three successive stages—phantastic, memorial, reminiscient—whereby the interval between sensation and cogitation is bridged over. Each of the three is directly dependent on past sensation, either as reproduction or as corollary; each of them is an indispensable condition of man's cogitation; moreover, in the highest of the three,

* Aristot. *De Animâ*, III. iv. p. 429, a. 10: *περὶ δὲ τοῦ μορίου τοῦ τῆς ψυχῆς ὃ γινώσκει τε ἡ ψυχὴ καὶ φρονεῖ*. He himself defines what he means by *νοῦς* a few lines lower; and he is careful to specify it as *ὁ τῆς ψυχῆς νοῦς*—*ὁ ἄρα καλούμενος τῆς ψυχῆς νοῦς* (λέγω δὲ νοῦν, ὃ διανοεῖται καὶ ὑπολαμβάνει ἡ ψυχὴ)—a. 22.

In the preceding chapter he expressly discriminates *νόησις* from *ὑπόληψις*. This last word *ὑπόληψις* is the most general term for *believing* or *opining* upon reasons good or bad; the varieties under it are *ἐπιστήμη*, *δόξα*, *φρόνησις* καὶ *ταῦναντία τούτων* (p. 427, b. 16-27).

we have actually slid unperceived into the cogitant phase of the human soul ; for Aristotle declares the reminiscent process to be of the nature of a syllogism.^a That the soul cannot cogitate or reason without phantasms—that phantasms are required for the actual working of the human Noûs—he affirms in the most explicit manner.^b

The doctrine of Aristotle respecting Noûs has been a puzzle, even from the time of his first commentators. Partly from the obscurity inherent in the subject, partly from the defective condition of his text as it now stands, his meaning cannot be always clearly comprehended, nor does it seem that the different passages can be completely reconciled.

Anaxagoras, Demokritus, and other philosophers, appear to have spoken of Noûs or Intellect in a large and vague sense, as equivalent to Soul generally. Plato seems to have been the first to narrow and specialize the meaning ; distinguishing pointedly (as we have stated above) the rational or encephalic soul, in the cranium, with its circular rotations, from the two lower souls, thoracic and abdominal. Aristotle agreed with him in this distinction (either of separate souls or of separate functions in the same soul) ; but he attenuated and divested it of all connexion with separate corporeal lodgment, or with peculiar movements of any kind. In his psychology, the brain no longer appears as the seat of intelligence, but simply as a cold, moist, and senseless organ, destined to countervail the excessive heat of the heart ; which last is the great centre of animal heat, of life, and of the sentient soul. Aristotle declares Noûs not to be connected with, or dependent

^a Aristot. De Memor. et Rem. ii. p. 453, a. 10.

^b Ibid. p. 449, b. 31—p. 450, a. 12 : νοεῖν οὐκ ἔστιν ἄνευ φαντάσματος—ἡ

δὲ μνήμη καὶ ἡ τῶν νοητῶν οὐκ ἄνευ φαντάσματος ἔστιν.—De Animâ, III. vii. p. 431, a. 16.

on, any given bodily organs or movements appropriated to itself: this is one main circumstance distinguishing it from the nutrient soul as well as from the sentient soul, each of which rests indispensably upon corporeal organs and agencies of its own.

It will be remembered that we stated the relation of Soul to Body (in Aristotle's view) as that of Form to Matter; the two together constituting a concrete individual, numerically one; also that Form and Matter, each being essentially relative to the other, admitted of gradations, higher and lower; *e.g.* a massive cube of marble is already *materia formata*, but it is still purely *materia*, relative to the statue that may be obtained from it. Now, the grand region of Form is the Celestial Body—the vast, deep, perceivable, circular mass circumscribing the Kosmos, and enclosing, in and around its centre, Earth with the other three elements, tenanted by substances generated and perishable. This Celestial Body is the abode of divinity, including many divine beings who take part in its eternal rotations, viz. the Sun, Moon, Stars, &c., and other Gods. Now, every soul, or every form that animates the matter of a living being, derives its vitalizing influence from this celestial region. All seeds of life include within them a spiritual or gaseous heat, more divine than the four elements, proceeding from the sun, and in nature akin to the element of the stars. Such solar or celestial heat differs generically from the heat of fire. It is the only source from whence the principle of life, with the animal heat that accompanies it, can be obtained. Soul, in all its varieties, proceeds from hence.*

* Aristot. De Generat. Animal. II. iii. p. 736, b. 29: πάσης μὲν οὖν ψυχῆς δύναμις ἐνέρου σώματος ἔοικε κεκοινωνηκέναι καὶ θειοτέρου τῶν κα-
λουμένων στοιχείων ὥς δὲ διαφέρουσι τιμότητι αἱ ψυχαὶ καὶ ἀτιμία ἀλλήλων, οὕτω καὶ ἡ τοιαύτη διαφέρει φύσιν πάντων μὲν γὰρ ἐν τῷ σπέρματι ἐν-

But though all varieties of Soul emanate from the same celestial source, they possess the divine element in very different degrees, and are very unequal in comparative worth and dignity. The lowest variety, or nutritive soul—the only one possessed by plants, among which there is no separation of sex^a—is contained potentially in the seed, and is thus transmitted when that seed is matured into a new individual. In animals, which possess it along with the sensitive soul and among which the sexes are separated, it is also contained potentially in the generative system of the female separately; and the first commencement of life in the future animal is thus a purely vegetable life.^b The sensitive soul, the characteristic of the complete animal, cannot be superadded except by copulation and the male semen. The female, being comparatively impotent and having less animal heat, furnishes only the matter of the future offspring; form, or the moving, fecundating, cause, is supplied by the male. Through the two together the new individual animal is completed, having not merely the nutritive soul, but also the sentient soul along with it.^c

Both the nutritive and the sentient souls have, each of them respectively, a special bodily agency and movement belonging to them. But the Noûs, or the noëtic soul, has no partnership with any similar bodily agency. There is no special corporeal potentiality (to speak in Aristotelian language) which it is destined to actualize. It enters from without, and emanates from a still more exalted influence of that divine celestial substance from which all psychical or vitalizing heat proceeds.^d It is

πάρχει, ὅπερ ποιεῖ γόνιμα εἶναι τὰ σπέρματα, τὸ καλούμενον θερμόν.

^a Aristot. de Generat. Animal. I. xxiii. p. 731, a. 27.

^b Ibid. II. iii. p. 736, b. 12.

^c Ibid. I. ii. p. 716, a. 4-17; xix. p. 726, b. 33; xx. p. 728, a. 17; xxi. p. 729, b. 6-27.

^d Ibid. II. iii. p. 736, b. 27: λείπεται δὲ τὸν νοῦν μόνον θύραθεν ἐπεισ-

superinduced upon the nutritive and sentient souls, and introduces itself at an age of the individual later than both of them. Having no part of the bodily organism specially appropriated to it, this variety of soul—what is called the *Noûs*—stands distinguished from the other two in being perfectly separable from the body;^a that is, separable from the organized body which it is the essential function of the two lower souls to actualize, and with which both of them are bound up. The *Noûs* is not separable from the body altogether; it belongs essentially to the divine celestial body, and to those luminaries and other divine beings by whom portions of it are tenanted. Theorizing contemplation—the perfect, unclouded, unembarrassed, exercise of the theoretical *Noûs*—is the single mental activity of these divinities; contemplation of the formal regularity of the *Kosmos*, with its eternal and faultless rotations, and with their own perfection as participating therein. The celestial body is the body whereto *Noûs*, or the noëtic soul, properly belongs;^b quite apart from the two other souls, sentient and nutritive, upon which it is grafted in the animal body; and apart also from all the necessities of human action, preceded by balanced motives and deliberate choice.^c

είναι, καὶ θεῖον εἶναι μόνον· οὐθὲν γὰρ αὐτοῦ τῇ ἐνεργείᾳ κοινωνεῖ σωματικὴ ἐνέργεια. The words *θεῖον εἶναι μόνον* must not be construed strictly, for in the next following passage he proceeds to declare that *αὐτὴ ψυχὴ, ψυχικὴ δύναμις* or *ἀρχή*, partakes of the divine element, and that in this respect there is only a difference of degree between one *ψυχὴ* and another.

^a Aristot. *De Generat. Animal.* II. iii. p. 737, a. 10: *ὁ καλούμενος νοῦς.*

De Animâ, II. ii. p. 413, b. 25; iii. p. 415, a. 11.

^b Respecting τὸ *ἄνω σῶμα*, see the copious citations in Trendelenburg's note ad Aristot. *De Animâ*, II. vii.; *Comm.* p. 373.

^c Aristot. *Ethic. Nikom.* X. viii. p. 1178, b. 20: *τῷ δὲ ζῶντι τοῦ πράττειν ἀφηρημένῳ, ἔτι δὲ μᾶλλον τοῦ ποιεῖν, τί λείπεται πλὴν θεωρίας; ὥστε ἡ τοῦ θεοῦ ἐνέργεια, μακαριότητι διαφέρονσα, θεωρητικὴ ἂν εἴη.*—See also *Metaphysic.* A. v. p. 1074, b. 26-35.

From this celestial body, a certain influence of Noûs is transferred to some of the mortal inhabitants of earth, water, and air. Thus a third or noëtic soul—or rather a third noëtic function—is added to the two existing functions, sensitive and nutrient, of the animal soul, which acquires thereby an improved aptitude for, and correlation with, the Formal and Universal. We have already stated that the sensitive soul possesses this aptitude to a certain extent; it receives the impression of sensible forms, without being impressed by the matter accompanying them. The noëtic function strengthens and sharpens the aptitude; the soul comes into correlation with those cogitable or intellective forms which are involved in the sensible forms;* it rises from the lower generalities of the Second Philosophy, to the higher generalities of the First Philosophy.

As the sentient or percipient soul is the form or correlate of all perceivables, and thus identified with them in nature, all of them having existence only in relation to it,—so the cogitant or intellective soul is the form or correlate of all cogitables, all of which exist relatively to it, and only relatively.^b It is in fact the highest of all forms—the Form of Forms; the mental or subjective aspect of all formal reality.

Such at least is the tendency and purpose of that noëtic influence which the celestial substance imparts to the human soul; but it is realized only to a very small degree. In its characteristic theorizing efficacy, the godlike Noûs counts for a small fraction of the whole soul, though superexcellent in quality.^c There are but

* Aristot. De Animâ, III. viii. p. 432, a. 6: ἐν τοῖς εἶδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστίν.

^b Ibid. p. 432, b. 2: ὁ νοῦς εἶδος εἰδῶν καὶ ἡ αἰσθησις εἶδος αἰσθητῶν.

^c Aristot. Ethic. Nikom. X. vii. p. 1177, b. 34: εἰ γὰρ καὶ τῷ ὄγκῳ μικρόν ἐστι, δυνάμει καὶ τιμότητι πολὺ μᾶλλον πάντων ὑπερέχει.

few men in whom it is tolerably developed, and even in those few it is countervailed by many other agencies.^a The noëtic function in men and animals exists only in companionship with the two other psychical functions. It is subservient to the limits and conditions that they impose, as well as to the necessities of individual and social action; to all that is required for "acting like a man," according to the Aristotelian phrase. Man's nature is complex, and not self-sufficing for a life of theorizing contemplation, such as that wherein the celestial inmates pass their immortality of happiness.^b

We have thus to study the noëtic function according to the manifestations of it that we find in man, and to a certain extent in some other privileged animals. Bees, for example, partake in the divine gift to a certain extent; being distinguished in this respect from their analogues—wasps and hornets.^c

In these and other animals, and in man to a still greater degree, the theorizing activity exists; but it is either starved, or at least has to deal with materials obscure, puzzling, conflicting; while, on the other

^a Aristot. De Memor. et Remin. i. p. 450, a. 18.

^b Aristot. Ethic. Nikom. X. vii. p. 1177, b. 26: *ὁ δὲ τοιοῦτος ἀν εἴη βίος κρείττων ἢ κατ' ἀνθρώπων*.—viii. p. 1178, b. 6: *δεῖσεται οὖν τοιούτων πρὸς τὸ ἀνθρωπεύεσθαι*.—ix. p. 1178, b. 33: *οὐκ αὐτάρκης ἡ φύσις πρὸς τὸ θεωρεῖν*. Compare similar sentiments in Aristot. *Metaphys.* A. ii. p. 983, a. 1.

^c Aristot. De Gen. Animal. III. x. p. 760, a. 4: *ὄντος δὲ περιττοῦ τοῦ γένους καὶ ἰδίου τοῦ τῶν μελιττῶν*.—p. 761, a. 4: *οὐ γὰρ ἔχουσιν (wasps and hornets) οὐδὲν θείον, ὥσπερ τὸ γένος τῶν μελιττῶν*. It is remarkable that *περιττός*, the epithet here applied by Aristotle to bees, is the epithet

that he also applies to men of theoretical and speculative activity, as contrasted with men prudent and judicious in action (see *Metaphys.* A. ii. p. 983, a. 2; also *Ethic. Nikom.* VI. vii. p. 1141, b. 6). Elsewhere he calls bees *φρόνιμα* (*Metaphys.* A. i. p. 980, b. 22). See a good note of Torstrick (on Aristot. De Animâ, III. p. 428, a. 10), p. 172 of his Commentary. Aristotle may possibly have been one among the philosophers that Virgil had in his mind, in *Georgics*, iv. 219:—

"His quidam signis, atque hæc exempla secuti,
Esse apibus partem divinæ mentis, et haustus
Æthereos dixere: Deum namque ire per omnes
Terrasque, tractusque maris, cœlumque pro-
fundum," &c.

hand, the practical intellect becomes largely developed, through the pressure of wants and desires, combined with the teaching of experience. In Aristotle's view, sensible perception is a separate source of knowledge, accompanied with judgment and discrimination, independent of the noëtic function. Occasionally, he refers the intellectual superiority of man to the properly attempered combination and antagonism of heat in the heart with cold in the brain, each strong and pure;^a all the highly endowed animals (he says) have greater animal heat, which is the essential condition of a better soul;^b he reckons the finer sense of touch possessed by man as an essential condition of the same intellectual result.^c Sensible perception in its five diverse manifestations, together with its secondary psychical effects—phantasy and memory, accumulates in the human mind (and in some animals) a greater or less experience of particular facts; from some of which inferences are drawn as to others unknown, directing conduct as well as enlarging knowledge.^d

All this process—a perpetual movement of sense and memory—begins from infancy, and goes on independently of Noûs or the noëtic function properly so called; which grows up gradually at a later age, aided by the acquisition of language and by instruction conveyed

^a Aristot. De Generat. Animal. II. vi. p. 744, a. 11-31: *δηλοῖ δὲ τὴν εὐκράσιαν ἢ διάνοιαν φρονιμώτατον γὰρ ἐστὶ τῶν ζῴων ἄνθρωπος*. We may remark that Aristotle considers cold as in some cases a positive property, not simply as the absence or privation of heat (De Partibus Animal. II. ii. p. 649, a. 18). The heart is the part wherein the psychical fire (as it were) is kept burning: *τῆς ψυχῆς ὥσπερ ἐμπενυρευμένης ἐν τοῖς μορίοις τοῦτοις* (Aristot. De Vitâ et Morte, iv.

p. 469, b. 16). Virgil, in the beautiful lines of his Second Georgic (483), laments that he is disqualified for deep philosophical studies by the want of heat round his heart:—

"Sin, has ne possim naturæ accedere partes,
Frigidus obstiterit circum præcordia sanguis,"
&c.

^b Aristot. De Respirat. xiii. p. 477, a. 16.

^c Aristot. De Animâ, II. ix. p. 421, a. 21.

^d Aristot. Metaphys. A. i. pp. 980-1.

through language. The supervening Noûs presupposes and depends upon what has been thus treasured up by experience. Though, in the celestial body, Noûs exists separately from human beings, and though it there operates *proprio motu* apart from sense, such is not the case with the human Noûs; which depends upon the co-operation, and is subject to the restrictions, of the complicated soul and body wherewith it is domiciled—restrictions differing in each individual case. Though the noëtic process is distinct from sense, yet without sense it cannot take place in man. Aristotle expressly says: “You cannot cogitate without a phantasm or without a continuous image.” Now the phantasm has been already explained as a relic of movements of sense—or as those movements themselves, looked at in another point of view.* “When we cogitate” (he says), “our mental affection is the same as when we draw a triangle for geometrical study; for there, though we do not make use of the fact that the triangle is determinate in its magnitude, we still draw it of a determinate magnitude. So in cogitation, even when we are not cogitating a determinate *quantum*, we nevertheless set before our eyes a determinate *quantum*, but we do not cogitate it *quatenus* determinate.”^b We cannot even

* Aristot. De Somniis, i. p. 459, a. 15; De Animâ, III. vii. p. 431, a. 17; iii. p. 428, b. 12.

^b Aristot. De Memor. et Remin. i. p. 449, b. 30: ἐπεὶ δὲ περὶ φαντασίας εἴρηται πρότερον ἐν τοῖς περὶ ψυχῆς, καὶ νοεῖν οὐκ ἔστιν ἀνευ φαντάσματος· συμβαίνει γὰρ τὸ αὐτὸ πάθος ἐν τῷ νοεῖν ὅπερ καὶ ἐν τῷ διαγράφειν· ἐκεῖ τε γὰρ οὐθὲν προσχρῶμενοι τῷ τὸ ποσὸν ὀρισμένον εἶναι τὸ τριγώνου, ὅμως γράφωμεν ὀρισμένον κατὰ τὸ ποσόν· καὶ ὁ νοῶν ὡσαύτως, κἂν μὴ ποσόν

νοῇ, τίθεται πρὸ ὀμμάτων ποσόν, νοεῖ δ' οὐχ ἢ ποσόν.

This passage appears to be as clear a statement of the main doctrine of Nominalism as can be found in Hobbes or Berkeley. In the sixteenth section of the Introduction to the Principles of Human Knowledge, Berkeley says:—“And here it must be acknowledged that a man may consider a figure merely as triangular, without attending to the particular qualities of the angles or relations of the sides.

(he goes on to say) remember the *cogitabilia* without "a phantasm or sensible image; so that our memory of them is only by way of concomitance" (indirect and secondary).^a Phantasy is thus absolutely indispensable to cogitation: first to carrying on the process at all; next to remembering it after it is past. Without either the visible phantasm of objects seen and touched, or the audible phantasm of words heard and remembered, the *Noûs* in human beings would be a nullity.^b

We see that, though Aristotle recognizes a general distinction between phantasy and cogitation, and alludes to many animals as having the former without attaining to the latter, yet he also declares that in man, who possesses both, not only is cogitation dependent upon phantasy, but phantasy passes into cogitation by gradations almost imperceptible. In regard to the practical application of *Noûs* (*i.e.* to animal movements determined either by appetite or by reason), he finds a great difficulty in keeping the distinction clearly marked. Substantially, indeed, he lets it drop. When he speaks of phantasy as being either calculating or perceptive, we are unable to see in what respect *calculating phantasy* (which he states not to belong to other animals) differs from an effort of cogitation.^c Indeed, he speaks with some diffidence respecting any distri-

—In like manner we may consider Peter so far forth as man, or so far forth as animal, without framing the forementioned idea, either of man or animal, *inasmuch as all that is perceived is not considered.*" Berkeley has not improved upon the statement of Aristotle.

^a Aristot. De Memor. et Remin. i. p. 450, a. 13.

^b About sense and hearing, as the *fundamenta* of intellect, see Aristot. De Sensu et Sensili, i. p. 437, a. 1-17.

^c Aristot. De Animâ, III. x. p. 433, a. 9-b. 30: *εἴ τις τὴν φαντασίαν τιθεῖν ὡς νόσιν τινα—φαντασία δὲ πᾶσα ἢ λογιστικὴ ἢ αἰσθητικὴ ταύτης μὲν οὖν καὶ τὰ ἄλλα ζῶα μετέχει.* Also vii. p. 431, b. 7.

bution of parts in the same soul, suspecting that such distribution is not real but logical : you may subdivide as much as you choose.*

It thus appears clear that Aristotle restricts the *Noûs* or *noëtic function* in *man* to the matters of sense and experience, physical or mental, and that he considers the phantasm to be an essential accompaniment of the cogitative act. Yet this does not at all detract from his view of the grandeur, importance, and wide range of survey, belonging to the *noëtic function*. It is the portion of man's nature that correlates with the abstract and universal ; but it is only a portion of his nature, and must work in conjunction and harmony with the rest. The abstract cannot be really separated from the concrete, nor the universal from one or other of its particulars, nor the essence from that whereof it is the essence, nor the attribute from that of which it is the attribute, nor the genus and species from the individuals comprehended therein ; nor, to speak in purely Aristotelian language, the Form from some Matter, or the Matter from some Form. In all these cases there is a *notional* or *logical* distinction, impressing the mind as the result of various comparisons, noted by an appropriate term, and remembered afterwards by means of that term (that is, by means of an audible or visible phantasm) ; but real separation there neither is nor can be. This is the cardinal principle of Aristotle, repeated in almost all his works—his marked antithesis against Plato. Such logical distinctions as those here noticed (they might be multiplied without number) it belongs to *Noûs* or the *noëtic function* to cognize. But the real objects, in reference to which alone the distinctions have a meaning, are concrete and individual ; and the

* Aristot. De Animâ, III. ix. p. 432, a. 23.

cognizing subject is really the entire man, employing indeed the noëtic function, but employing it with the aid of other mental forces, phantasms and remembrances, real and verbal.

The noëtic soul is called by Aristotle "the place of Forms," "the potentiality of Forms," "the correlate of things apart from Matter."^a It cogitates these Forms in or along with the phantasms: the cogitable Forms are contained *in* the sensible Forms; for there is nothing really existent beyond or apart from visible or tangible magnitudes, with their properties and affections, and with the so-called abstractions considered by the geometer. Hence, without sensible perception, a man can neither learn nor understand anything; in all his theoretical contemplations, he requires some phantasm to contemplate along with them.^b

Herein lies one of the main distinctions between the noëtic and the sentient souls. The sentient deals with particulars, and correlates with external bodies; the noëtic apprehends universals, which in a certain sense are within the soul: hence a man can cogitate whenever or whatever he chooses, but he can see or touch only what is present.^c Another distinction is, that the sentient soul is embodied in special organs, each with determinate capacities, and correlating with external objects, themselves alike determinate, acting only under certain conditions of locality. The possibilities of sensation are thus from the beginning limited; moreover, a certain relative proportion must be maintained be-

^a Aristot. De Animâ, III. iv. p. 429, a. 27, b. 22.

^b Ibid. vii. p. 431, b. 2: τὰ μὲν οὖν εἶδη τὸ νοητικὸν ἐν τοῖς φαντάσμασι νοεῖ.—viii. p. 432, a. 3: ἐπεὶ δὲ οὐδὲ πρᾶγμα οὐθέν ἐστι παρὰ τὰ μεγέθη, ὥς δοκεῖ, τὰ αἰσθητὰ κεχωρισμένον, ἐν τοῖς

εἶδεσι τοῖς αἰσθητοῖς τὰ νοητὰ ἐστὶ, τὰ τε ἐν ἀφαιρέσει λεγόμενα, καὶ ὅσα τῶν αἰσθητῶν ἔξεις καὶ πάθη· καὶ διὰ τοῦτο οὔτε μὴ αἰσθανόμενος μὴθὲν οὐθέν ἂν μάθῃ οὐδὲ ξυνείη· ὅταν δὲ θεωρῇ, ἀνάγκη ἅμα φάντασμα τι θεωρεῖν.

^c Ibid. II. v. p. 417, b. 22.

tween the percipient and the perceivable; for extreme or violent sounds, colours, &c., produce no sensation; on the contrary, they deaden the sentient organ.^a But the noëtic soul (what is called the "Noûs of the soul," to use Aristotle's language)^b is nothing at all in actuality before its noëtic function commences, though it is everything in potentiality. It is not embodied in any corporeal organ of its own, nor mingled as a new elementary ingredient with the body; it does not correlate with any external objects; it is not so specially attached to some particulars as to make it antipathetic to others. Accordingly its possibilities of cogitation are unlimited; it apprehends with equal facility what is most cogitable and what is least cogitable. It is thoroughly indeterminate in its nature, and is in fact at first a mere unlimited cogitative potentiality;^c like a tablet, upon which no letters have as yet been written, but upon which all or any letters *may be* written.^d

We have already said that the Noûs of the human soul emanates from a peculiar influence of the celestial body, which is the special region of Form in the Kosmos. Through it we acquire an enlarged power of apprehending the abstract and universal; we can ascend above sensible forms to the cogitable forms contained therein; we can consider all forms in themselves, without paying attention to the matter wherein they are embodied. Instead of considering the concrete solid or liquid before us, we can mentally analyse them, and thus study solidity in the abstract, fluidity in the abstract. While our senses judge of water as hot and

^a Aristot. De Animâ, III. iv. p. 429, a. 31.

^b Ibid. a. 22: ὁ ἄρα καλούμενος τῆς ψυχῆς νοῦς (λέγω δὲ νοῦν ὃ δια- νοεῖται καὶ ὑπολαμβάνει ἢ ψυχὴν) οὐθέν

ἐστὶν ἐνεργεία τῶν ὄντων πρὶν νοεῖν.

^c Ibid. a. 21: ὥστε μηδ' αὐτοῦ εἶναι φύσιν μηδεμίαν ἀλλ' ἢ ταύτην, ὅτι δυνατόν.

^d Ibid. p. 430, a. 1.

cold, our noëtic function enables us to appreciate water in the abstract—to determine its essence, and to furnish a definition of it.^a In all these objects, as combinations of Form with Matter, the cogitable form exists potentially; and is abstracted or considered abstractedly, by the cogitant Noûs.^b Yet this last (as we have already seen) cannot operate except along with and by aid of phantasms—of impressions revived or remaining from sense. It is thus immersed in the materials of sense, and has no others. But it handles them in a way of its own, and under new points of view; comparing and analysing; recognizing the abstract in the concrete, and the universal in the particular; discriminating mentally and logically the one from the other; and noting the distinction by appropriate terms. Such distinctions are the *noûmena*, generated in the process of cogitation by Noûs itself. The Noûs, as it exists in any individual, gradually loses its original character of naked potentiality, and becomes an actual working force, by means of its own acquired materials.^c It is an aggregate of *noûmena*, all of them in nature identical with itself; and, while cogitating them, the Noûs at the same time cogitates itself. Considered abstractedly, apart from matter, they exist only in the mind itself; in theoretical speculation, the *cognoscens* and the *cognitum* are identical. But they are not really separable from matter, and have no reality apart from it.

The distinction, yet at the same time correlation, between Form and Matter pervades all nature (Aristotle affirms), and will be found in the Noûs as elsewhere. We must recognize an *Intellectus Agens* or constructive,

^a Aristot. De Animâ, III. iv. p. 429, b. 10.

^b Ibid. p. 430, a. 2-9.

^c Ibid. II. v. p. 417, b. 23. Ibid. III. iv. p. 429, b. 7: *ὅταν δύνῃται ἐνεργεῖν δι' αὐτοῦ.*

and an *Intellectus Patiens* or receptive.* The *Agens* is the great intellectual energy pervading the celestial body, and acting upon all the animals susceptible of its operation; analogous to light, which illuminates the diaphanous medium, and elevates what was mere potential colour into colour actual and visible.^b The *Patiens* is the intellectual receptivity acted upon in each individual, and capable of being made to cogitate every thing; anterior to the *Agens*, in time, so far as regards the individual, yet as a general fact (when we are talking of man as a species) not anterior even in time, but correlative. Of the two, the *Intellectus Agens* is the more venerable; it is pure intellectual energy, unmixed, unimpressible from without, and separable from all animal body. It is this, and nothing more, when considered apart from animal body; but it is then eternal and immortal, while the *Intellectus Patiens* perishes with the remaining soul and with the body. Yet though the *Intellectus Agens* is thus eternal, and though *we* have part in it, we cannot remember any of its operations anterior to our own maturity; for the concurrence of the *Intellectus Patiens*, which begins and ends with us, is indispensable both to remembrance and to thought.^c

* Aristot. De Animâ, III. v. p. 430, a. 10.

^b Ibid. a. 14: καὶ ἔστιν ὁ μὲν τοιοῦτος νοῦς τῷ πάντα γίνεσθαι, ὁ δὲ τῷ πάντα ποιεῖν, ὡς ἔξισ τις, οἷον τὸ φῶς· τρόπον γὰρ τινα καὶ τὸ φῶς ποιεῖ τὰ δυνάμει ὄντα χρώματα ἐνέργειά χρώματα. Aristotle here illustrates νοῦς ποιητικός by φῶς and ἔξισ; and we know what view he takes of φῶς (De Animâ, II. vii. p. 418, b. 9) as the ἐνέργεια or ἔξισ τοῦ διαφανοῦς—which diaphanous he explains to be a φύσις τις ἐνυπάρχουσα ἐν ἀέρι καὶ ὕδατι καὶ ἐν τῷ αἰδίῳ τῷ ὄντι σώματι. Judging

by this illustration, it seems proper to couple the νοῦς ποιητικός here with his declaration in De Generat. Animal. II. p. 736, b. 28: τὸν νοῦν μόνον θύραθεν ἐπεισιέναι καὶ θεῖον εἶναι μόνον: he cannot consider the νοῦς ποιητικός, which is of the nature of Form, as belonging to each individual man like the νοῦς παθητικός.

* Aristot. De Animâ, III. v. p. 430, a. 17: καὶ οὗτος ὁ νοῦς (i. e. ποιητικός) χωριστὸς καὶ ἀπαθής καὶ ἀμυγής, τῇ οὐσίᾳ ὦν ἐνέργεια· αἰεὶ γὰρ τιμώτερον τὸ ποιοῦν τοῦ πάσχοντος, καὶ ἡ ἀρχὴ τῆς ὕλης.—Ibid. a. 22:

We see here the full extent of Aristotle's difference from the Platonic doctrine, in respect to the immortality of the soul. He had defined soul as the first actualization of a body having potentiality of life with a determinate organism. This of course implied, and he expressly declares it, that soul and body in each individual case were one and indivisible, so that the soul of Sokrates perished of necessity with the body of Sokrates.^a But he accompanied that declaration with a reserve in favour of Noûs, and especially of the theorizing Noûs; which he recognized as a different sort of soul, not dependent on a determinate bodily organism, but capable of being separated from it, as the eternal is from the perishable.^b The present chapter informs us how far such reserve is intended to go. That the theorizing Noûs is not limited, like the sentient soul, to a determinate bodily organism, but exists apart from that organism and eternally—is maintained as incontestable: it is the characteristic intellectual activity of the eternal celestial body and the divine inmates thereof. But the distinction of Form and Matter is here pointed out, as prevailing in Noûs and in Soul generally, not less than throughout all other Nature. The theorizing Noûs, as it exists in Sokrates, Plato, Demokritus, Anaxagoras, Empedokles, Xenokrates, &c., is individualized in each, and individualized differently in each. It represents the result of the *Intellectus Agens* or Formal Noûs, universal

χωρισθεῖς δ' ἐστὶ μόνον τοῦθ' ὅπερ ἐστὶ, καὶ τοῦτο μόνον ἀθάνατον καὶ αἰδίδιον· οὐ μνημονεύομεν δέ, ὅτι τοῦτο μὲν ἀπαθείς, ὁ δὲ παθητικὸς νοῦς φθαρτός, καὶ ἀνευ τούτου οὐθέν νοεῖ. In this obscure and difficult chapter (difficult even to Theophrastus the friend and pupil of the author), we have given the best meaning that the

words seem to admit.

^a Aristot. De Animâ, II. i. p. 413, a. 3.

^b Ibid. ii. p. 413, b. 24: περὶ δὲ τοῦ νοῦ καὶ τῆς θεωρητικῆς δυνάμεως οὐδέν πω φανερόν, ἀλλ' εἰσὶ ψυχῆς γένος ἕτερον εἶναι, καὶ τοῦτο μόνον ἐνδέχεται χωρίζεσθαι, καθάπερ τὸ αἰδίδιον τοῦ φθαρτοῦ.

and permanent, upon the *Intellectus Patiens* or noëtic receptivity peculiar to each individual; the co-operation of the two is indispensable to sustain the theorizing intellect of any individual man. But the *Intellectus Patiens*, or *Receptivus*, perishes along with the individual. Accordingly, the intellectual life of Sokrates cannot be continued farther. It cannot be prolonged after his sensitive and nutritive life has ceased; the noëtic function, as it exists in him, is subject to the same limits of duration as the other functions of the soul. The intellectual man is no more immortal than the sentient man.

Such is the opinion here delivered by Aristotle. And it follows indeed as a distinct corollary from his doctrine respecting animal and vegetable procreation in general. Individuality (the being *unum numero* in a species) and immortality are in his view incompatible facts; the one excludes the other. In assigning (as he so often does) a final cause or purpose to the widespread fact of procreation of species by animals and vegetables, he tells us that every individual living organism, having once attained the advantage of existence, yearns and aspires to prolong this for ever, and to become immortal. But this aspiration cannot be realized; Nature has forbidden it, or is inadequate to it; no individual can be immortal. Being precluded from separate immortality, the individual approaches as near to it as is possible, by generating a new individual like itself, and thus perpetuating the species. Such is the explanation given by Aristotle of the great fact pervading the sublunary, organized world*—immortal species of plants, animals, and men, through a succes-

* Aristot. De Generat. Animal. II. i. p. 731, b. 20, seq.; De Animâ, II. iv. p. 415, a. 26, seq.; Œconomica, I. iii. p. 1343, b. 23.

sion of individuals each essentially perishable. The general doctrine applies to Noûs as well as to the other functions of the soul. Noûs is immortal; but the individual Sokrates, considered as noëtic or intellectual, can no more be immortal than the same individual considered as sentient or reminiscent.

We have already stated that Noûs—Intellect—the noëtic function—is that faculty of the soul that correlates with the abstract and universal; with Form apart from Matter. Its process is at once analytical, synthetical, and retentive. Nature presents to us only concretes and particulars, in a perpetual course of change and reciprocal action; in these the abstract and universal are immersed, and out of these they have to be disengaged by logical analysis. That the abstract is a derivative from the concrete, and the universal from particulars—is the doctrine of Aristotle. Ascending from particulars, the analysis is carried so far that at length it can go no farther. It continues to divide until it comes to *indivisibles*, or simple notions, the highest abstractions, and the largest universals. These are the elements out of which universal propositions are formed, the first premisses or *principia* of demonstration. Unphilosophical minds do not reach these indivisibles at all: but it is the function of the theorizing Noûs to fasten on them, and combine them into true propositions. In so far as regards the indivisibles themselves, falsehood is out of the question, and truth also, since they affirm nothing. The mind either apprehends them, or it does not apprehend them: there is no other alternative.* But, when combined into affirma-

* Aristot. De Animâ, III. vi. p. 430, a. 26: ἡ μὲν οὖν τῶν ἀδιαίρετων νόησις ἐν τοῖς περὶ αὐτὸν ἔστι τὸ ψεῦδος· ἐν οἷς δὲ καὶ τὸ ψεῦδος καὶ τὸ ἀληθές, σύνθεσις τις ἤδη νοημάτων ὥσπερ ἐν ὄντων.—Metaphysica, Θ. x. p. 1051, b. 31: περὶ ταῦτα οὐκ ἔστιν ἀπαρθῆναι, ἀλλ' ἡ νοεῖν ἡ μὴ.

tive propositions, they then are true or false, as the case may be. The formal essence of each object is among these indivisibles, and is apprehended as such by the intellect; which, while confining itself to such essence, is unerring, as each sense is in regard to its own appropriate perceivables.* But, when the intellect goes farther, and proceeds to predicate any attribute respecting the essence, then it becomes liable to error, as sense is when drawing inferences.

One of the chief functions that Aristotle assigns to Noûs, or the noëtic function, is that the *principia* of demonstration and knowledge belong to it; and not merely the *principia*, but also, in cases of action preceded by deliberation and balance of motives, the ultimate application of *principia* to action. So that he styles Noûs both beginning and end; also the beginning of the beginning; and, moreover, he declares it to be always right and unerring—equal to Science and even more than Science.^b These are high praises, conveying little information, and not reconcilable with other passages wherein he speaks of the *exercise* of the noëtic function (τὸ νοεῖν) as sometimes right, sometimes wrong.^c But, for the question of psychology, the point to be determined is, in what sense he meant that *principia* belonged to Noûs. He certainly did not mean that the first principles of reasoning were novelties originated, suggested, or introduced into the soul by noëtic influence. Not only he does not say this, but he takes pains to impress the exact contrary. In passages cited a few

* Aristot. De Animâ, III. vi. p. 430, b. 29. This portion of the treatise is peculiarly confused and difficult to understand.

ἀρχὴ καὶ τέλος νοῦς.—Analyt. Post. II. xviii. p. 100, b. 5.

^b Aristot. Ethic. Nikomach. VI. xii. p. 1143, a. 25, b. 10: διὸ καὶ

* Aristot. De Animâ, III. iii. p. 427, b. 8: ἀλλ' οὐδὲ τὸ νοεῖν, ἐν ᾧ ἔστι τὸ ὀρθῶς καὶ μὴ ὀρθῶς—δια- νοεῖσθαι δ' ἐνδέχεται καὶ ψευδῶς.

pages back, he declares that Noûs in entering the soul brings nothing whatever with it; that it is an universal potentiality—a capacity in regard to truth, but nothing more;^a that it is in fact a capacity not merely for comparing and judging (to both of which he recognizes even the sentient soul as competent), but also for combining many into one, and resolving the apparent one into several; for abstracting, generalizing, and selecting among the phantasms present, which of them should be attended to, and which should be left out of attention.^b Such is his opinion about the noëtic function; and he states explicitly that the abstract and universal not only arise from the concrete and particular, but are inseparable from the same really—separable only logically.

He describes, at the end of the *Analytica Posteriora* and elsewhere, the steps whereby the mind ascends gradually from sense, memory, and experience, to general principles. And he indicates a curious contrast between these and the noëtic functions. Sense, memory, phantasy, reminiscence, are movements of the body as well as of the soul; our thoughts and feelings come and go, none of them remaining long. But the noëtic process is the reverse of this; it is an arrest of all this mental movement, a detention of the fugitive thoughts, a subsidence from perturbation—so that the attention dwells steadily and for some time on the same matters.^c Analysis, selection, and concentration of attention, are

^a Arist. *De Animâ*, I. ii. p. 404, a. 30, where he censures Demokritus: οὐ δὲ χρηταὶ τῷ νῷ ὡς δυνάμει τινὶ περὶ τὴν ἀλήθειαν, ἀλλὰ ταῦτό λέγει ψυχὴν καὶ νοῦν.—Compare *ibid.* III. iv. p. 429, a. 21, b. 30.

^b *Ibid.* III. vi. p. 430, b. 5: τὸ δὲ ἐν ποιοῦν, τοῦτο ὁ νοῦς ἑκαστον.—*Ibid.* xi. p. 434, a. 9.

^c Aristot. *Physica*, VII. iii. p. 247, b. 9: ἡ δ' ἐξ ἀρχῆς λήψις τῆς ἐπιστήμης γένεσις οὐκ ἔστιν· τῷ γὰρ ἡρεμῆσαι καὶ στήναι τὴν διάνοιαν ἐπίστασθαι καὶ φρονεῖν λέγομεν.—Also *De Animâ*, I. iii. p. 407, b. 32, and the remarkable passage in the *Analytica Poster.* II. xviii. p. 100, a. 3–b. 5.

the real characteristics of the Aristotelian Noûs. It is not (as some philosophers have thought) a source of new general truths, let into the soul by a separate door, and independent of experience as well as transcending experience.

Passing now to the Emotions, we find that these are not systematically classified and analysed by Aristotle, as belonging to a scheme of Psychology; though he treats them incidentally, with great ability and acuteness, both in his Ethics, where he regards them as auxiliaries or impediments to a rational plan of life, and in his Rhetoric, where he touches upon their operation as it bears on oratorical effect. He introduces however in his Psychology some answer to the question, What is it that produces local movement in the animal body? He replies that movement is produced both by Noûs and by Appetite.

Speaking strictly, we ought to call Appetite alone the direct producing cause, acted upon by the *appetitus*, which is here the *Primum Movens Immobile*. But this *appetitus* cannot act without coming into the intellectual sphere, as something seen, imagined, cogitated.* In this case the Noûs or Intellect is stimulated through appetite, and operates in subordination thereto. Such is the Intellect, considered as Practical, the principle or determining cause of which is the *appetitus* or object of desire; the Intellect manifesting itself only for the sake of some end, to be attained or avoided. Herein it is distinguished altogether from the Theoretical Noûs or Intellect, which does not concern itself with any *expetenda* or *fugienda*, and does not meddle with conduct. The *appetitus* is good, real or apparent, in so far as it can

* Aristot. De Animâ, III. x. p. 433, b. 11: πρῶτον δὲ πάντων τὸ ὀρεκτὸν (τοῦτο γὰρ κινεῖ οὐ κινούμενον τῷ νοηθῆναι ἢ φαντασθῆναι).

be achieved by our actions. Often we have contradictory appetites; and, in such cases, the Intellect is active generally as a force resisting the present and caring for the future. But Appetite or Desire, being an energy including both soul and body, is the real and appropriate cause that determines us to local movement, often even against strong opposition from the Intellect.*

Aristotle thus concludes his scheme of Psychology, comprehending all plants as well as all animals; a scheme differing in this respect, as well as in others, from the schemes of those that had preceded him, and founded upon the peculiar principles of his own First Philosophy. Soul is to organized body as Form to Matter, as Actualizer to the Potential; not similar or homogeneous, but correlative; the two being only separable as distinct logical points of view in regard to one and the same integer or individual. Aristotle recognizes many different varieties of Soul, or rather many distinct functions of the same soul, from the lowest or most universal, to the highest or most peculiar and privileged; but the higher functions presuppose or depend upon the lower, as conditions; while the same principle of Relativity pervades them all. He brings this principle prominently forward, when he is summing up^b in the third or last book of the treatise *De Animâ*:—"The Soul is in a certain way all existent things; for all of them are either Perceivables or Cogitables; and the Cogitant Soul is in a certain way the matters cogitated, while the Percipient Soul is in a

* Aristot. *De Animâ*, III. x. p. 433, a. 25, b. 19: διὸ ἐν τοῖς κοινοῖς σώματος καὶ ψυχῆς ἔργοις, &c.

^b Ibid. viii. p. 431, b. 20, seq.: νῦν δὲ περὶ ψυχῆς τὰ λεχθέντα συγκεφα-

λαιώσαντες, εἰπωμεν πάλιν ὅτι ἡ ψυχὴ τὰ ὄντα πῶς ἐστὶ πάντα. ἡ γὰρ αἰσθητὰ τὰ ὄντα ἢ νοητά, ἐστὶ δὲ ἡ ἐπιστήμη μὲν τὰ ἐπιστητά πως, ἡ δ' αἰσθησις τὰ αἰσθητά.

certain way the matters perceived." The Percipient and its *Percepta*—the Cogitant and its *Cogitata*—each implies and correlates with the other: the Percipient is the highest Form of all *Percepta*; the Cogitant is the Form of Forms, or the highest of all Forms, cogitable or perceivable.* The Percipient or Cogitant Subject is thus conceived only in relation to the Objects perceived or cogitated, while these Objects again are presented as essentially correlative to the Subject. The realities of Nature are particulars, exhibiting Form and Matter in one; though, for purposes of scientific study—of assimilation and distinction—it is necessary to consider each of the two abstractedly from the other.

* Aristot. De Animâ, III. viii. p. 432, a. 2; ὁ τοῦς εἶδος εἰδῶν, καὶ ἡ αἰσθησις εἶδος αἰσθητῶν.

APPENDIX.

APPENDIX.

I.

THE DOCTRINE OF UNIVERSALS.

THE controversy respecting Universals first obtained its place in philosophy from the colloquies of Sokrates, and the writings and teachings of Plato. We need not here touch upon their predecessors, Parmenides and Herakleitus, who, in a confused and unsystematic manner, approached this question from opposite sides, and whose speculations worked much upon the mind of Plato in determining both his aggressive dialectic, and his constructive theories. Parmenides of Elea, improving upon the ruder conceptions of Xenophanes, was the first to give emphatic proclamation to the celebrated Eleatic doctrine, Absolute Ens as opposed to Relative Fientia: *i.e.* the Cogitable, which Parmenides conceived as the One and All of reality, ἐν καὶ πᾶν, enduring and unchangeable, of which the negative was unmeaning,—and the Sensible or Perceivable, which was in perpetual change, succession and multiplicity, without either unity, or reality, or endurance. To the last of these two departments Herakleitus assigned especial prominence. In place of the permanent underlying Ens, which he did not recognize, he substituted a cogitable process of *change*, or generalized concept of what was common to all the successive phases of change—a perpetual stream of generation and destruction, or implication of contraries, in which everything appeared only that it might disappear, without endurance or uniformity. In this doctrine of Herakleitus, the world of sense and particulars could not be the object either of certain knowledge or even of correct probable opinion; in that of Parmenides, it was recognized as an object of probable opinion, though not of certain knowledge. But in both doctrines, as well as in the theories of Demokritus, it was degraded, and presented as incapable of yielding satisfaction to the search of a philosophizing mind, which could find neither truth nor reality except in the world of Concepts and Cogitables.

Besides the two theories above-mentioned, there were current in the Hellenic world, before the maturity of Sokrates, several other veins of speculation about the Kosmos, totally divergent one from the other, and by that very divergence sometimes stimulating curiosity, sometimes discouraging all study as though the problems were hopeless. But Parmenides and Herakleitus, together with the arithmetical and geometrical hypotheses of the Pythagoreans, are expressly noticed by Aristotle as having specially contributed to form the philosophy of Plato.

Neither Parmenides, nor Herakleitus, nor the Pythagoreans were dialecticians. They gave out their own thoughts in their own way, with little or no regard to dissentients. They did not cultivate the art of argumentative attack or defence, nor the correct application and diversified confrontation of universal terms, which are the great instruments of that art. It was Zeno, the disciple of Parmenides, that first employed dialectic in support of his master's theory, or rather against the counter-theories of opponents. He showed by arguments memorable for their subtlety, that the hypothesis of an Absolute, composed of *Entia Plura Discontinua*, led to consequences even more absurd than those that opponents deduced from the Parmenidean hypothesis of *Ens Unum Continuum*. The dialectic, thus inaugurated by Zeno, reached still higher perfection in the colloquies of Sokrates; who not only employed a new method, but also introduced new topics of debate—ethical, political, and social matters instead of physical things and the Kosmos.

The peculiar originality of Sokrates is well known: a man who wrote nothing, but passed his life in indiscriminate colloquy with every one; who professed to have no knowledge himself, but interrogated others on matters that they talked about familiarly and professed to know well; whose colloquies generally ended by puzzling the respondents, and by proving to themselves that they neither knew nor could explain even matters that they had begun by affirming confidently as too clear to need explanation. Aristotle tells us* that Sokrates was the first that set himself expressly and methodically to scrutinize the definitions of general or universal terms, and to confront them, not merely with each other, but also, by a sort of inductive process, with many particular cases that were, or appeared to be, included under them. And both Xenophon and Plato give us abundant examples of the terms to which Sokrates applied his interrogatories: What is the Holy? What is

* *Metaphysica*, A. p. 987, b. 2; M. p. 1078, b. 18.

the Unholy? What is the Beautiful or Honourable? What is the Ugly or Base? What is Justice—Injustice—Temperance—Madness—Courage—Cowardice—A City—A man fit for civil life? What is the Command of Men? What is the character fit for commanding men? Such are the specimens, furnished by a hearer,* of the universal terms whereon the interrogatories of Sokrates bore. All of them were terms spoken and heard familiarly by citizens in the market-place, as if each understood them perfectly; but when Sokrates, professing his own ignorance, put questions asking for solutions of difficulties that perplexed his own mind, the answers showed that these difficulties were equally insoluble by respondents, who had never thought of them before. The confident persuasion of knowledge, with which the colloquy began, stood exposed as a false persuasion without any basis of reality. Such illusory semblance of knowledge was proclaimed by Sokrates to be the chronic, though unconscious, intellectual condition of his contemporaries. How he undertook, as the mission of a long life, to expose it, is impressively set forth in the Platonic Apology.

It was thus by Sokrates that the meaning of universal terms and universal propositions, and the relation of each respectively to particular terms and particular propositions were first made a subject of express enquiry and analytical interrogation. His influence was powerful in imparting the same dialectical impulse to several companions; but most of all to Plato, who not only enlarged and amplified the range of Sokratic enquiry, but also brought the meaning of universal terms into something like system and theory, as a portion of the conditions of trustworthy science. Plato was the first to affirm the doctrine afterwards called Realism, as the fundamental postulate of all true and proved cognition. He affirmed it boldly, and in its most extended sense, though he also produces (according to his frequent practice) many powerful arguments and unsolved objections against it. It was he (to use the striking phrase of Milton^b) that first imported into the schools the portent of Realism. The doctrine has been since opposed, confuted, curtailed, transformed, diversified in many ways; but it has maintained its place in logical speculation, and has remained, under one phraseology or another, the creed of various philosophers, from that time down to the present.

* Xenophon Memorab. I. i. 16; IV. vi. 1-13.

^b See the Latin verses 'De Ideâ Platoniciâ quemadmodum Aristoteles intellexit'—

"At tu, perenne ruris Academi decus,
Hæc monstra si tu primus induxisti scholis," &c.

The following account of the problems of Realism was handed down to the speculations of the mediæval philosophers by Porphyry (between 270–300 A.D.), in his Introduction to the treatise of Aristotle on the Categories. After informing Chrysaorius that he will prepare for him a concise statement of the doctrines of the old philosophers respecting Genus, Differentia, Species, Proprium, Accidens, “abstaining from the deeper enquiries, but giving suitable development to the more simple,”—Porphyry thus proceeds:—“For example, I shall decline discussing, in respect to Genera and Species, (1) Whether they have a substantive existence, or reside merely in naked mental conceptions; (2) Whether, assuming them to have substantive existence, they are bodies or incorporeals; (3) Whether their substantive existence is in and along with the objects of sense, or apart and separable. Upon this task I shall not enter, since it is of the greatest depth, and requires another larger investigation; but shall try at once to show you how the ancients (especially the Peripatetics), with a view to logical discourse, dealt with the topics now propounded.”*

Before Porphyry, all these three problems had been largely debated, first by Plato, next by Aristotle against Plato, again by the Stoics against both, and lastly by Plotinus and the Neo-Platonists as conciliators of Plato with Aristotle. After Porphyry, problems the same, or similar, continued to stand in the foreground of speculation, until the authority of Aristotle became discredited at all points by the influences of the sixteenth and seventeenth centuries. But in order to find the beginning of them, as questions provoking curiosity and opening dissentient points of view to inventive dialecticians, we must go back to the age and the dialogues of Plato.

The real Sokrates (*i.e.* as he is described by Xenophon) inculcated in his conversation steady reverence for the invisible, as apart from and overriding the phenomena of sensible experience; but he interpreted the term in a religious sense, as signifying the agency of the personal gods, employed to produce effects beneficial or injurious to mankind.^b He also puts forth his dialectical acuteness to prepare consistent and tenable definitions of familiar general terms (of which instances have already been given), at least so far as to make others feel, for the first time, that they did not understand these terms, though they had been always talking like persons that *did* understand. But the Platonic

* Porphyry, *Introd. in Categor. init.* p. 1, a. 1, Schol. Br.

^b Xenophon, *Memorab.* I. iv. 9-17; IV. iii. 14.

Sokrates (i.e. as spokesman in the dialogues of Plato) enlarges both these discussions materially. Plato recognizes, not simply the invisible persons or gods, but also a separate world of invisible, impersonal entities or objects; one of which he postulates as the objective reality, though only a cogitable reality, correlating with each general term. These Entia he considers to be not merely distinct realities, but the only true and knowable realities: they are eternal and unchangeable, manifested by the fact that particulars partake in them, and imparting a partial show of stability to the indeterminate flux of particulars: unless such separate Universal Entia be supposed, there is nothing whereon cognition can fasten, and consequently there can be no cognition at all.* These are the substantive, self-existent Ideas, or Forms that Plato first presented to the philosophical world; sometimes with logical acuteness, oftener still with rich poetical and imaginative colouring. They constitute the main body and characteristic of the hypothesis of Realism.

But, though the main hypothesis is the same, the accessories and manner of presentation differ materially among its different advocates. In these respects, indeed, Plato differs not only from others, but also from himself. Systematic teaching or exposition is not his purpose, nor does he ever give opinions in his own name. We have from him an aggregate of detached dialogues, in many of which this same hypothesis is brought under discussion, but in each dialogue, the spokesmen approach it from a different side; while in others (distinguished by various critics as the Sokratic dialogues) it does not come under discussion at all, Plato being content to remain upon the Sokratic platform, and to debate the meaning of general terms without postulating in correlation with them an objective reality, apart from their respective particulars.

At the close of the Platonic dialogue called *Kratylus*, Sokrates is introduced as presenting the hypothesis of self-existent, eternal, unchangeable Ideas (exactly in the way that Aristotle ascribes to Plato) as the counter-proposition to the theory of universal flux and change announced by Herakleitus. Particulars are ever changing (it is here argued) and are thus out of the reach of cognition; but, unless the Universal Ideas above them, such as the Self-beautiful, the Self-good, &c., be admitted as unchangeable, objective realities, there can be nothing either nameable or knowable: cognition becomes impossible.

* Aristot. *Metaphys.* A. vi. p. 987, b. 5; M. iv. p. 1078, b. 15.

In the *Timæus*, Plato describes the construction of the *Kosmos* by a Divine Architect, and the model followed by the latter in his work. The distinction is here again brought out, and announced as capital, between the permanent, unalterable *Entia*, and the transient, ever-fluctuating *Fientia*, which come and go, but never really *are*. *Entia* are apprehended by the cogitant or intelligent soul of the *Kosmos*, *Fientia* by the sentient or percipient soul; the cosmical soul as a whole, in order to suffice for both these tasks, is made up of diverse component elements—*Idem*, correlating with the first of the two, *Diversum*, correlating with the second, and *Idem* implicated with *Diversum*, corresponding to both in conjunction. The Divine Architect is described as constructing a *Kosmos*, composed both of soul and body, upon the pattern of the grand pre-existent *Idea*—*αὐτοζῶον* or the Self-Animal; which included in itself as a genus the four distinct species—celestial (gods, visible and invisible), terrestrial, aerial, and aquatic.

The main point that Plato here insists upon is—the eternal and unchangeable reality of the cogitable objects called *Ideas*, prior both in time and in logical order to the transient objects of sight and touch, and serving as an exemplar to which these latter are made to approximate imperfectly. He assumes such priority, without proof, in the case of the *Idea* of Animal; but, when he touches upon the four elements—Fire, Air, Water, Earth—he hesitates to make the same assumption, and thinks himself required to give a reason for it. The reason that he assigns (announced distinctly as his own) is as follows: If Intellection (*Cogitation*, *Noûs*) and true Opinion are two genera distinct from each other, there must clearly exist *Forms* or *Ideas* imperceptible to our senses, and apprehended only by cogitation or intellection; but if, as some persons think, true opinion is noway different from intellection, then we must admit all the objects perceived by our senses as firm realities. Now the fact is (he proceeds to say) that true opinion is not identical with intellection, but quite distinct, separate, and unlike to it. Intellection is communicated by teaching, through true reasoning, and is unshakeable by persuasion; true opinion is communicated by persuasion and removed by counter-persuasion, without true reasoning. True opinion may belong to any man; but intellection is the privilege only of gods and of a small section of mankind. Accordingly, since the two are distinct, the objects correlating with each of them must also be distinct from each other. There must exist, first, primary, eternal, unchangeable *Forms*, apprehended by intellect or cogitation, but imperceptible by sense; and, secondly, resemblances of these bearing the same name,

generated and destroyed each in some place, and apprehended first by sense, afterwards by opinion. Thirdly, there must be the place wherein such resemblances are generated; a place itself imperceptible by sense, yet postulated, as a receptacle indispensable for them, by a dreamy kind of computation.

We see here that the proof given by Plato, in support of the existence of Forms as the primary realities, is essentially psychological: resting upon the fact that there is a distinct mental energy or faculty called Intellection (apart from Sense and Opinion), which must have its distinct objective correlate; and upon the farther fact, that intellection is the high prerogative of the gods, shared only by a few chosen men. This last point of the case is more largely and emphatically brought out in the *Phædrus*, where Sokrates delivers a highly poetical effusion respecting the partial intercommunion of the human soul with these eternal intellectual realities. To contemplate them is the constant privilege of the gods; to do so is also the aspiration of the immortal soul of man generally, in the pre-existent state, prior to incorporation with the human body; though only in a few cases is such aspiration realized. Even those few human souls, that have succeeded in getting sight of the intellectual Ideas (essences without colour, figure, or tactile properties), lose all recollection of them when first entering into partnership with a human body; but are enabled gradually to recall them, by combining repeated impressions and experience of their resemblances in the world of sense. The revival of these divine elements is an inspiration of the nature of madness; though it is a variety of madness as much better than uninspired human reason as other varieties are worse. The soul, becoming insensible to ordinary pursuits, contracts a passionate devotion to these Universal Ideas, and to that dialectical communion, especially with some pregnant youthful mind, that brings them into clear separate contemplation disengaged from the limits and confusion of sense.

Here philosophy is presented as the special inspiration of a few, whose souls during the period of pre-existence have sufficiently caught sight of the Universal Ideas or Essences; so that these last, though overlaid and buried when the soul is first plunged in a body, are yet revivable afterwards under favourable circumstances, through their imperfect copies in the world of sense; especially by the sight of personal beauty in an ingenuous and aspiring youth, in which case the visible copy makes nearest approach to the perfection of the Universal Idea or Type. At the same time, Plato again presents to us the Cogitable Universals as

the only objects of true cognition, the Sensible Particulars being objects merely of opinion.

In the *Phædon*, Sokrates advances the same doctrine, that the perceptions of sense are full of error and confusion, and can at best suggest nothing higher than opinion; that true cogitation can never be attained except when the cogitant mind disengages itself from the body and comes into direct contemplation of the Universal Entia, objects eternal and always the same—The Self-beautiful, Self-good, Self-just, Self-great, Healthy, Strong, &c., all which objects are invisible, and can be apprehended only by the cogitation or intellect. It is this Cogitable Universal that is alone real; Sensible Particulars are not real, nor lasting, nor trustworthy. None but a few philosophers, however, can attain to such pure mental energy during this life; nor even they fully and perfectly. But they will attain it fully after death (their souls being immortal), if their lives have been passed in sober philosophical training. And their souls enjoyed it before birth during the period of pre-existence; having acquired, before junction with the body, the knowledge of these Universals, which are forgotten during childhood, but recalled in the way of Reminiscence, by sensible perceptions that make a distant approach to them. Thus, according to the *Phædon* and some other dialogues, all learning is merely reminiscence; the mind is brought back, by the laws of association, to the knowledge of Universal Realities that it had possessed in its state of pre-existence. Particulars of sense participate in these Universals to a certain extent, or resemble them imperfectly; and they are therefore called by the same name.

In the *Republic*, we have a repetition and copious illustration of this antithesis between the world of Universals or Cogitables, which are the only unchangeable realities and the only objects of knowledge,—and the world of Sensible Particulars, which are transitory and confused shadows of these Universals, and are objects of opinion only. Full and real *Ens* is knowable, *Non-Ens* is altogether unknowable; what is midway between the two is matter of opinion, and in such midway are the Particulars of sense.* Respecting these last, no truth is attainable: whenever you affirm a proposition respecting any of them, you may with equal truth affirm the contrary at the same time. Nowhere is the contrast between the Universals or real Ideas (among which the Idea of Good is the highest, predominant over all the rest), and the unreal Particulars, or Percepta, of Sense, more forcibly insisted upon than

* Plato, *Republic*. v. pp. 477, 478.

in the Republic. Even the celestial bodies and their movements, being among these Percepta of sense, are ranked among phantoms interesting but useless to observe; they are the best of all Percepta, but they fall very short of the perfection that the mental eye contemplates in the Ideal—in the true Figures and Numbers, in the real Velocity and the real Slowness. In the simile commencing the seventh book of the Republic, Plato compares mankind to prisoners in a cave, chained in one particular attitude, so as to behold only an ever-varying multiplicity of shadows, projected, through the opening of the cave upon the wall before them, by certain unseen realities behind. The philosopher is one among a few, who by training or inspiration, have been enabled to face about from this original attitude, and to contemplate with his mind the real unchangeable Universals, instead of having his eye fixed upon their particular manifestations, at once shadowy and transient. By such mental revolution he comes round from the Perceivable to the Cogitable, from Opinion to Knowledge.

The distinction between these two is farther argued in the elaborate dialogue called *Theætetus*, where Sokrates, trying to explain what Knowledge or Cognition is, refutes three proposed explanations and shows, to his own satisfaction, that it is not sensible perception, that it is not true opinion, that it is not true opinion coupled with rational explanation. But he confesses himself unable to show what Knowledge or Cognition is, though he continues to announce it as correlating with Realities Cogitable and Universal only.*

In the passages above noticed, and in many others besides, we find Plato drawing a capital distinction between Universals eternal and unchangeable (each of them a Unit as well as a Universal),^b which he affirms to be the only real Entia,—and Particulars transient and variable, which are not Entia at all, but are always coming or going; the Universals being objects of cogitation and of a psychological fact called Cognition, which he declares to be infallible; and the Particulars being objects of Sense, and of another psychological fact radically different, called Opinion, which he pronounces to be fallible and misleading. Plato holds, moreover, that the Particulars, though generically distinct and separate from the Universals, have nevertheless a certain communion or participation

* Plato, *Theætêt.* pp. 173, 176, 186. "unus et universus," expresses this idea; Grote's Plato, II. xxvi. pp. 370-395. also the lines:—

^b Plato, *Philébus*, p. 15, A. B.; Republic, x. p. 596, A. The phrase of Milton, "Sed quamlibet natura sit communior, Tamen seorsus extat ad modum unius," &c.

with them, by virtue of which they become half existent and half cognizable, but never attain to full reality or cognizability.

This is the first statement of the theory of complete and unqualified Realism, which came to be known in the Middle Ages under the phrase *Universalia ante rem* or *extra rem*, and to be distinguished from the two counter-theories *Universalia in re* (Aristotelian), and *Universalia post rem* (Nominalism). Indeed, the Platonic theory goes even farther than the phrase *Universalia ante rem*, which recognizes the particular as a reality, though posterior and derivative; for Plato attenuates it into phantom and shadow. The problem was now clearly set out in philosophy—What are the objects correlating with Universal terms, and with Particular terms? What is the relation between the two? Plato first gave to the world the solution called Realism, which lasted so long after his time. We shall presently find Aristotle taking issue with him on both the affirmations included in his theory.

But though Plato first introduced this theory into philosophy, he was neither blind to the objections against it, nor disposed to conceal them. His mind was at once poetically constructive and dialectically destructive; to both these impulses the theory furnished ample scope, while the form of his compositions (separate dialogues, with no mention of his own name) rendered it easy to give expression either to one or to the other. Before Aristotle arose to take issue with him, we shall find him taking issue with himself, especially in the dialogues called *Sophistes* and *Parmenides*, not to mention the *Philêbus*, wherein he breaks down the unity even of his sovereign Idea, which in the *Republic* governs the Cogitable World,—the Idea of Good.*

Both in the *Sophistes* and in the *Parmenides*, the leading disputant introduced by Plato is not Sokrates, but Parmenides and another person (unnamed) of the Eleatic school. In both dialogues objections are taken against the Realistic theory elsewhere propounded by Plato, though the objections adduced in the one are quite distinct from those noticed in the other. In the *Sophistes*, the Eleatic reasoner impugns successfully the theories of two classes of philosophers, one the opposite of the other: first, the Materialists, who recognized no Entia except the Percepta of Sense; next, the Realistic Idealists, who refused to recognize these last as real Entia, or as anything more than transient and mutable Generata or Fientia, while they confined the title of Entia to the Forms, cogitable, incorporeal, eternal, immutable, neither acting on anything, nor acted

* Plato, *Philêbus*, pp. 65, 66. See Grote's *Plato*, II. xxx. pp. 584, 585.

upon by anything. These persons are called in the Sophistes "Friends of Forms," and their theory is exactly what we have already cited out of so many other dialogues of Plato, drawing the marked line of separation between Entia and Fientia; between the Immutable, which alone is real and cognizable, and the Mutable, neither real nor cognizable. The Eleate in the Sophistes controverts this Platonic theory, and maintains that among the Universal Entia there are included items mutable as well as immutable; that both are real and both cognizable; that Non-Ens (instead of being set in glaring contrast with Ens, as the totally incogitable against the infallibly cognizable)^a is one among the multiplicity of Real Forms, meaning only what is different from Ens, and therefore cognizable not less than Ens; that Percepta and Cogitata are alike real, yet both only relatively real, correlating with minds percipient and cogitant. Thus, the reasoning in the Sophistes, while it sets aside the doctrine of *Universalia ante rem*, does not mark out any other relation between Universals and Particulars (neither *in re* nor *post rem*). It discusses chiefly the intercommunion or reciprocal exclusion of Universals with respect to each other; and upon this point, far from representing them as objects of infallible Cognition as contrasted with Opinion, it enrolls both Opinion and Discourse among the Universals themselves, and declares both of them to be readily combinable with Non-Ens and Falsehood. So that we have here error and fallibility recognized in the region of Universals, as well as in that of Particulars.

But it is principally in the dialogue Parmenides that Plato discusses with dialectical acuteness the relation of Universals to their Particulars; putting aside the intercommunion (affirmed in the Sophistes) or reciprocal exclusion between one Universal and another, as an hypothesis at least supremely difficult to vindicate, if at all admissible.^b In the dialogue, Sokrates is introduced in the unusual character of a youthful and ardent aspirant in philosophy, defending the Platonic theory of Ideas as we have seen it proclaimed in the Republic and in the Timæus. The veteran Parmenides appears as the opponent to cross-examine him; and not only impugns the theory by several interrogatories which Sokrates cannot answer, but also intimates that there remain behind other objections equally serious requiring answer. Yet at the same time he declares that, unless the theory be admitted, and unless *Universalia ante rem* can

^a Plato, Republic, v. pp. 478, 479.

^b Plato, Parmenid. p. 129, E.; with Stallbaum's Prolegomena to that dialogue, pp. 38-42.

be sustained as existent, there is no trustworthy cognition attainable, nor any end to be served by philosophical debate. Moreover, Parmenides warns Sokrates that, before he can acquire a mental condition competent to defend the theory, he must go through numerous preliminary dialectical exercises; following out both the affirmative and the negative hypotheses in respect to a great variety of Universals severally. To illustrate the course prescribed, Parmenides gives a long specimen of this dialectic in handling his own doctrine of *Ens Unum*. He takes first the hypothesis *Si Unum est*, next the hypothesis *Si Unum non est*; and he deduces from each, by ingenious subtleties, double and contradictory conclusions. These he sums up at the end, challenging Sokrates to solve the puzzles before affirming his thesis.

Apart from these antinomies at the close of the dialogue, the cross-examination of Sokrates by Parmenides, in the middle of it, brings out forcibly against the Realistic theory objections such as those urged against it by the Nominalists of the Middle Ages. In the first place, we find that Plato conceived the theory itself differently from Porphyry and the philosophers that wrote subsequently to the Peripatetic criticism. Porphyry and his successors put the question, Whether Genera and Species had a separate existence, apart from the Individuals composing them? Now, the world of Forms (the Cogitable or Ideal world as opposed to the Sensible) is not here conceived by Plato as peopled in the first instance by Genera and Species. Its first tenants are *Attributes*, and attributes distinctly *relative*—Likeness, One and Many, Justice, Beauty, Goodness, &c. Sokrates, being asked by Parmenides whether he admits Forms corresponding with these names, answers unhesitatingly in the affirmative. He is next asked whether he admits forms corresponding to the names Man, Fire, Water, &c., and, instead of replying in the affirmative, intimates that he does not feel sure. Lastly, the question is put whether there are Forms corresponding to the names of mean objects—Mud, Hair, Dirt, &c. At first he answers emphatically in the negative, and treats the affirmative as preposterous; there exist no cogitable Hair, &c., but only the object of sense that we so denominate. Yet, on second thoughts, he is not without misgiving that there may be Forms even of these; though the supposition is so repulsive to him that he shakes it off as much as he can. Upon this last expression of sentiment Parmenides comments, ascribing it to the juvenility of Sokrates, and intimating that, when Sokrates has become more deeply imbued with philosophy, he will cease to set aside any of these objects as unworthy.

Here we see that, in the theory of Realism as conceived by Sokrates, the Self-Existent Universals are not Genera and Species as such, but Attributes—not Second Substances or Essences, but Accidents or Attributes, *e.g.* Quality, Quantity, Relation, &c., to use the language afterwards introduced in the Aristotelian Categories; that no Genera or Species are admitted except with hesitation; and that the mean and undignified among them are scarcely admissible at all. This sentiment of dignity, associated with the *Universalia ante rem*, and emotional necessity for tracing back particulars to an august and respected origin, is to be noted as a marked and lasting feature of the Realistic creed; and it even passed on to the *Universalia in re*, as afterwards affirmed by Aristotle. Parmenides here takes exception to it (and so does Plato elsewhere*) as inconsistent with faithful adherence to scientific analogy.

Parmenides then proceeds (interrogating Sokrates) first to state what the Realistic theory is (Universals apart from Particulars—Particulars apart from Universals, yet having some participation in them, and named after them), next to bring out the difficulties attaching to it. The Universal or Form (he argues) cannot be entire in each of its many separate particulars; nor yet is it divisible, so that a part can be in one particular, and a part in another. For take the Forms Great, Equal, Small; Equal magnitudes are equal because they partake in the Form of Equality. But how can a part of the Form Equality, less than the whole Form, cause the magnitudes to be equal? How can the Form Smallness have any parts less than itself, or how can it be greater than anything?

The Form cannot be divided, nor can it co-exist undivided in each separate particular; accordingly, particulars can have no participation in it at all.

Again, you assume a Form of Greatness, because you see many particular objects, each of which appears to you great; this being the point of resemblance between them. But if you compare the Form of Greatness with any or all of the particular great objects, you will perceive a resemblance between them; this will require you to assume a higher Form, and so on upward without limit.

Sokrates, thus embarrassed, starts the hypothesis that perhaps each of these Forms may be a cogitation, and nothing more, existing only within the mind. How? rejoins Parmenides. Can there be a cogitation of nothing at all? Must not each cogitation have a real *cogitatum* correlating with it,—in this case, the one

* Plato, Sophist. p. 227, A. Politikus, p. 266, D.

Form that is identical throughout many particulars? If you say that particulars partake in the Form, and that each Form is nothing but a cogitation, does not this imply that each particular is itself cogitant?

Again Sokrates urges that the Forms are constant, unalterable, stationary in nature; that particulars resemble them, and participate in them only so far as to resemble them. But (rejoins Parmenides), if particulars resemble the Form, the Form must resemble them; accordingly, you must admit another and higher Form, as the point of resemblance between the Form and its particulars; and so on, upwards.

And farther (continues Parmenides), even when admitting these Universal Forms as self-existent, how can we know anything about them? Forms can correlate only with Forms, Particulars only with Particulars. Thus, if I, an individual man, am master, I correlate with another individual man, who is my servant, and he on his side with me. But the Form of mastership, the Universal self-existent Master, must correlate with the Form of servanthip, the Universal Servant. The correlation does not subsist between members of the two different worlds, but between different members of the same world respectively. Thus the Form of Cognition correlates with the Form of Truth; and the Form of each variety of Cognition, with the Form of the corresponding variety of Truth. But we, as individual subjects, do not possess in ourselves the Form of Cognition; our cognition is our own, correlating with such truth as belongs to it and to ourselves. Our cognition cannot reach to the Form of Truth, nor therefore to any other Form; we can know nothing of the Self-good, Self-beautiful, Self-just, &c., even supposing such Forms to exist.

These acute and subtle arguments are nowhere answered by Plato. They remain as unsolved difficulties, embarrassing the Realistic theory; they are reinforced by farther difficulties no less grave, included in the dialectical antinomies of Parmenides at the close of the dialogue, and by an unknown number of others indicated as producible, though not actually produced. Yet still Plato, with full consciousness of these difficulties, asserts unequivocally that, unless the Realistic theory can be sustained, philosophical research is fruitless, and truth cannot be reached. We see thus that the author of the theory has also left on record some of the most forcible arguments against it. It appears from Aristotle (though we do not learn the fact from the Platonic dialogues), that Plato, in his later years, symbolized the Ideas or Forms under the denomination of Ideal Numbers, generated by implication of The

One with what he called The Great and Little, or the Indeterminate Dyad. This last, however, is not the programme wherein the Realistic theory stands opposed to Nominalism.

But the dialogue *Parmenides*, though full of acuteness on the negative side, not only furnishes no counter-theory, but asserts continued allegiance to the Realistic theory, which passes as Plato's doctrine to his successors. To impugn, forcibly and even unanswerably, a theory at once so sweeping and so little fortified by positive reasons, was what many dialecticians of the age could do. But to do this, and at the same time to construct a counter-theory, was a task requiring higher powers of mind. One, however, of Plato's disciples and successors was found adequate to the task—Aristotle.

The Realistic Ontology of Plato is founded (as Aristotle himself remarks) upon mistrust and contempt of perception of sense, as bearing entirely on the flux of particulars, which never stand still so as to become objects of knowledge. All reality, and all cognoscibility, were supposed to reside in the separate world of Cogitable Universals (*extra rem* or *ante rem*), of which, in some confused manner, particulars were supposed to partake. The Universal, apart from its particulars, was clearly and fully knowable, furnishing propositions constantly and infallibly true: the Universal as manifested in its particulars was never fully knowable, nor could ever become the subject of propositions, except such as were sometimes true and sometimes false.

Against this separation of the Universal from its Particulars, Aristotle entered a strong protest; as well as against the subsidiary hypothesis of a participation of the latter in the former; which participation, when the two had been declared separate, appeared to him not only untenable and uncertified, but unintelligible. His arguments are interesting, as being among the earliest objections known to us against Realism.

1. Realism is a useless multiplication of existences, serving no purpose. Wherever a number of particulars—be they substances, eternal or perishable, or be they qualities, or relations—bear the same name, and thus have a Universal *in re* predicable of them in common, in every such case Plato assumes a Universal *extra rem*, or a separate self-existent Form; which explains nothing, and merely doubles the total to be summed up.*

2. Plato's arguments in support of Realism are either incon-

* Aristot. *Metaph. A. ix.* p. 990, a. 34; *M. iv.* p. 1073, a. 2. Here we have the first appearance of the argument that William of Ockham, the Nominalist, put in the

foreground of his case against Realism: "Entia non sunt multiplicanda præter necessitatem."

clusive, or prove too much. Wherever there is cognition (he argues), there must exist an eternal and unchangeable object of cognition, apart from particulars, which are changeable and perishable. No, replies Aristotle: cognition does not require the *Universale extra rem*; for the *Universale in re*, the constant predicate of all the particulars, is sufficient as an object of cognition. Moreover, if the argument were admitted, it would prove that there existed separate Forms or Universals of mere negations; for many of the constant predicates are altogether negative. Again, if Self-existent Universals are to be assumed corresponding to all our cogitations, we must assume Universals of extinct particulars, and even of fictitious particulars, such as hippocentaurs or chimeras; for of these, too, we have phantasms or concepts in our minds.*

3. The most subtle disputants on this matter include Relata, among the Universal Ideas or Forms. This is absurd, because these do not constitute any Genus by themselves. These disputants have also urged against the Realistic theory that powerful and unsolved objection, entitled "The Third Man."^b

* Aristot. Metaphys. A. ix. p. 990, b. 14; Scholia, p. 565, b. 9, Br.

^b Aristot. Metaph. A. ix. p. 990, b. 15: *οι ἀκριβέστεροι τῶν λόγων*. Both the points here noticed appear in the Parmenides of Plato.

The objection called "The Third Man" is expressed by saying that, if there be a Form of man, resembling individual men, you must farther postulate some higher Form, marking the point of resemblance between the two; and so on higher, without end.

The authenticity of the Platonic Parmenides is disputed by Ueberweg (Untersuchungen über die Echtheit und Zeitfolge der Platonischen Schriften, pp. 176-181), upon the ground (among others) that, while Aristotle never cites the dialogue by its title, nor ever makes probable allusion to it, the Parmenides advances against the theory of the Platonic Ideas this objection of Aristotle's, known under the name of "The Third Man." Aristotle (says Ueberweg), if he had known the Parmenides, would not have advanced this objection as his own. We must therefore suppose that the Parmenides was composed later than Aristotle, and borrowed this objection from Aristotle.

In reply to this argument I transcribe the passage of Aristotle (Metaphys. A. ix. p. 990, b. 15) to which Ueberweg himself refers: *ἔτι δὲ οἱ ἀκριβέστεροι τῶν λόγων*

οἱ μὲν τῶν πρὸς τι ποιῶσιν ἰδέας, ὧν οὐ φαμεν εἶναι καθ' αὐτὸ γένος, οἱ δὲ τὸν τρίτον ἄνθρωπον λέγουσιν. The same words (with the exception of *φασί* in place of *φαμέν*) are repeated in M. p. 1079, a. 11.

Now these words plainly indicate that Aristotle does not profess to advance the objection, called *ὁ τρίτος ἄνθρωπος*, as his own, or as broached by himself. He derives it from what he calls *οἱ ἀκριβέστεροι τῶν λόγων*. The charge against Aristotle, therefore, of advancing as his own an objection which had already been suggested by Plato himself in the Parmenides, is unfounded. And it is the more unfounded, because Aristotle, in the first book of the *Metaphysica*, speaks in the language of a Platonist, and considers himself as partly responsible for the doctrine of Ideas: *δείκνυμεν, φαμέν, οἴμεθα*, &c. (Alexand. in Schol. p. 563, b. 27, Brand.)

But what are we to understand by these words—*οἱ ἀκριβέστεροι τῶν λόγων*—from which Aristotle derives the objection? The words refer to certain expositions or arguments (oral, or written, or both) which were within the knowledge of Aristotle, and were of a peculiarly subtle and analytical character. Among them is very probably included the Platonic Parmenides itself, distinguished as it is for extreme subtlety.

4. The supporters of these Self-existent Universals trace them to two *principia*—The One, and the Indeterminate Dyad; which they affirm to be prior in existence even to the Universals themselves. But this cannot be granted; for the Idea of Number must be logically prior to the Idea of the Dyad; but the Idea of Number is relative, and the Relative can never be prior to the Absolute or Self-existent.

5. If we grant that, wherever there is one constant predicate belonging to many particulars, or wherever there is stable and trustworthy cognition, in all such cases a Self-existent Universal Correlate *extra rem* is to be assumed, we shall find that this applies not merely to Substances or Essences, but also to the other Categories—Quality, Quantity, Relation, &c. But hereby we exclude the possibility of participation in them by Particulars; since from such participation the Particular derives its Substance or Essence alone, not its accidental predicates. Thus the Self-existent Universal Dyad is eternal: but a particular pair, which derives its essential property of doubleness from partaking in this Universal Dyad, does not at the same time partake of eternity, unless by accident. Accordingly, there are no Universal Ideas, except of Substances or Essences: the common name, when applied to the world of sense and to that of cogitation, signifies the same thing—Substance or Essence. It is unmeaning to talk of anything else as signified—any other predicate common to many. Well then, if the Form of the Universals and the Form of those Particulars that participate in the Universals be the same, we shall have something common to both the one and the other, so that the objection called “The Third Man” will become applicable, and a higher Form must be postulated. But, if the Form of the Universals and the Form of the

(See Stallbaum's Prolegg. pp. 249, 277, 337, who says, “In uno ferè Parmenide idearum doctrina subtilius investigatur.”) I see no reason why it should not be included within the fair and reasonable meaning of the words. And such being the case, I cannot go along with Ueberweg (and other critics) who say that Aristotle has not even made an indirect allusion to the Parmenides.

But why did not Aristotle specify the Parmenides directly and by name? I do not know what was his reason. We may feel surprise (as Stallbaum feels, p. 337) that he does not; but, when critics infer from the omission that he did not know the dialogue as a work of Plato, I contest

the inference. We see that Alexander, in his elaborate commentary (p. 566, Schol. Brand.) makes no allusion to the Parmenides, though he alludes to Eudémus, to Diodórus, Kronus, and to the manner in which the objection called *ὁ τρίτος ἀνθρωπος* was handled by various Sophists. Now we are fully assured that the Parmenides was acknowledged as a work of Plato, long before the time of Alexander (since it is included in the catalogue of Thrasyllus); yet he, the most instructed of all the commentators, makes no allusion to it. Why he did not, I cannot say, but his omission affords no ground for concluding that he did not know it, or did not trust its authenticity.

participating Particulars, be not identical, then the same name, as signifying both, will be used equivocally; just as if you applied the same denomination man to Kallias and to a piece of wood, without any common property to warrant it.

6. But the greatest difficulty of all is to understand how these Cogitable Universals, not being causes of any change or movement, contribute in any way to the objects of sense, either to the eternal or to the perishable; or how they assist us towards the knowledge thereof, being not in them, and therefore not their substance or essence; or how they stand in any real relation to their participants, being not immanent therein. Particulars certainly do not proceed from these Universals, in any intelligible sense. To say that the Universals are archetypes, and that Particulars partake in them, is unmeaning, and mere poetic metaphor. For where is the working force to mould them in conformity with the Universals? Any one thing may *be* like, or may *become* like, to any other particular thing, by accident, or without any regular antecedent cause to produce such assimilation. The same particular substance, moreover, will have not one universal archetype only, but several. Thus, the same individual man will have not only the Self-animal and the Self-biped, but also the Self-man, as archetype. Then again, there will be universal archetypes, not merely for particular sensible objects, but also for Universals themselves; thus the genus will be an archetype for its various species; so that the same which is now archetype will, under other circumstances, be copy.

7. Furthermore, it seems impossible that what is Substance or Essence can be separate from that whereof it is the substance or essence. How then can the Universals, if they be the essences of sensible things, have any existence apart from those sensible things? Plato tells us in the Phædon, that the Forms or Universals are the causes why particulars both exist at all, and come into such or such modes of existence. But even if we assume Universals as existing, still the Particulars participant therein will not come into being, unless there be some efficient cause to produce movement; moreover, many other things come into being, though there be no Universals correlating therewith, *e.g.* a house, or a ring. The same causes that were sufficient to bring these last into being, will be sufficient to bring all particulars into being, without assuming any Universals *extra rem* at all.

8. Again, if the Universals or Forms are Numbers, how can they ever be causes? Even if we suppose Particulars to be Numbers also, how can one set of Numbers be causes to the others? There

can be no such causal influence, even if one set be eternal, and the other perishable.*

Out of the many objections raised by Aristotle against Plato, we have selected such as bear principally upon the theory of Realism; that is, upon the theory of *Universalia ante rem* or *extra rem*—self-existent, archetypal, cogitable substances, in which Particulars faintly participate. The objections are not superior in acuteness, and they are decidedly inferior, in clearness of enunciation, to those that Plato himself produces in the *Parmenides*. Moreover, several of them are founded upon Aristotle's point of view, and would have failed to convince Plato. The great merit of Aristotle is, that he went beyond the negative of the *Parmenides*, asserted this new point of view of his own, and formulated it into a counter-theory. He rejected altogether the separate and exclusive reality which Plato had claimed for his Absolutes of the cogitable world, as well as the derivative and unreal semblance that alone Plato accorded to the sensible world. Without denying the distinction of the two, as conceivable and nameable, he maintained that truth and cognition required that they should be looked at in implication with each other. And he went even a step farther, in antithesis to Plato, by reversing the order of the two. Instead of considering the Cogitable Universals alone as real and complete in themselves, and the Sensible Particulars as degenerate and confused semblances of them, he placed complete reality in the Sensible Particulars alone,^b and treated the Cogitable Universals as contributory appendages thereto; some being essential, others non-essential, but all of them relative, and none of them independent integers. His philosophy was a complete revolution as compared with *Parmenides* and Plato; a revolution, too, the more calculated to last, because he embodied it in an elaborate and original theory of Logic, Metaphysics, and Ontology. He was the first philosopher that, besides

* Aristot. *Metaph. A.* p. 991, b. 13. Several other objections are made by Aristotle against that variety of the Platonic theory wherein the Ideas were commuted into Ideal Numbers. These objections do not belong to the controversy of Realism against Nominalism.

^b Aristotle takes pains to vindicate against both Plato and the Herakleiteans the dignity of the Sensible World. They that depreciate sensible objects as perpetually changing, unstable, and unknowable, make the mistake (he observes) of confining their attention to the sub-

lunary interior of the Kosmos, where, indeed, generation and destruction largely prevail. But this is only a small portion of the entire Kosmos. In the largest portion—the visible, celestial, superlunary regions—there is no generation or destruction at all, nothing but permanence and uniformity. In appreciating the sensible world (Aristotle says) philosophers ought to pardon the shortcomings of the smaller portion on account of the excellences of the larger; and not condemn both together on account of the smaller (*Metaphys. Γ. v.* p. 1010, a. 30).

recognizing the equivocal character of those general terms whereon speculative debate chiefly turns, endeavoured methodically to set out and compare the different meanings of each term, and their relations to each other.

However much the Ontology of Aristotle may fail to satisfy modern exigencies, still, as compared with the Platonic Realism, it was a considerable improvement. Instead of adopting *Ens* as a self-explaining term, contrasted with the Generated and Perishable (the doctrine of Plato in the *Republic*, *Phædon*, and *Timæus*), he discriminates several distinct meanings of *Ens*; a discrimination not always usefully pursued, but tending in the main towards a better theory. The distinction between *Ens* potential, and *Ens* actual, does not belong directly to the question between Realism and Nominalism, yet it is a portion of that philosophical revolution wrought by Aristotle against Plato—displacement of the seat of reality, and transfer of it from the Cogitable Universal to the Sensible Particular. The direct enunciation of this change is contained in his distinction of *Ens* into Fundamental and Concomitant (*συμβεβηκός*), and his still greater refinement on the same principle by enumerating the ten varieties of *Ens* called Categories or Predicaments.* He will not allow *Ens* (nor *Unum*) to be a genus, partible into species: he recognizes it only as a word of many analogous meanings, one of them principal and fundamental, the rest derivative and subordinate thereto, each in its own manner. Aristotle thus establishes a graduated scale of *Entia*, each having its own value and position, and its own mode of connexion with the common centre. That common centre Aristotle declared to be of necessity some individual object—*Hoc Aliquid*, *That Man*, *This Horse*, &c. This was the common subject, to which all the other *Entia* belonged as predicates, and without which none of them had any reality. We here fall into the language of Logic, the first theory of which we owe to Aristotle. His ontological classification was adapted to that theory.

As we are here concerned only with the different ways of conceiving the relation between the Particular and the Universal, we are not called on to criticize the well-known decuple enumeration of Categories or Predicaments given by Aristotle, both in his treatise called by that name and elsewhere. For our purpose it

* In enumerating the Ten Categories, Aristotle takes his departure from the Proposition—*Homo currit*—*Homo vincit*. He assumes a particular individual as subject; and he distributes, under ten

general heads, all the information that can be asked or given about that subject—all the predicates that can be affirmed or denied thereof. [See Vol. I. ch. iii., especially p. 104, seq.]

is enough to point out that the particular sensible *Hoc Aliquid* is declared to be the ultimate subject, to which all Universals attach, as determinants or accompaniments; and that, if this condition be wanting, the unattached Universal cannot rank among complete Entia. The subject or First Substance, which can never become a predicate, is established as the indispensable ultimate subject for all predicates; if that disappears, all predicates disappear along with it. The Particular thus becomes the keystone of the arch whereon all Universals rest. Aristotle is indeed careful to point out a gradation in these predicates: some are essential to the subject, and thus approach so near to the First Substance that he calls them Second Substances; others, and the most in number, are not thus essential; these last are Concomitants or Accidents, and some of them fall so much short of complete Entity that he describes them as near to Non-Entia.* But all of them, essential or unessential, are alike constituents or appendages of the First Substance or Particular Subject, and have no reality in any other character.

We thus have the counter-theory of Aristotle against the Platonic Realism. Instead of separate Universal Substances, containing in themselves full reality, and forfeiting much of that reality when they faded down into the shadowy copies called Particulars, he inverts the Platonic order, announces full reality to be the privilege of the Particular Sensible, and confines the function of the Universal to that of a predicate, in or along with the Particular. There is no doctrine that he protests against more frequently than the ascribing of separate reality to the Universal. The tendency to do this, he signalizes as a natural but unfortunate illusion, lessening the beneficial efficacy of universal demonstrative reasoning.^b And he declares it to be a corollary from this view of the Particular as indispensable subject along with the Universal as its predicate—That the first principles of Demonstration in all the separate theoretical sciences must be obtained by Induction from particulars: first by impressions of sense preserved in the memory; then by multiplied remembrances enlarged into one experience; lastly, by many experiences generalized into one principle by the Noûs.^c

* Aristot. Metaph. E. p. 1026, b. 21: φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος.

There cannot be a stronger illustration of the difference between the Platonic and the Aristotelian point of view, than the fact that Plato applies the same designation to all particular objects of sense—

that they are only midway between Entia and Non-Entia (Republic, v. pp. 478-479).

^b Aristot. Analyt. Poster. I. xxiv. p. 85, a. 31, b. 19.

^c See the concluding chapter of the Analytica Posteriora.

A similar doctrine is stated by Plato in

While Aristotle thus declares Induction to be the source from whence Demonstration in these separate sciences draws its first principles, we must at the same time acknowledge that his manner of treating Science is not always conformable to this declaration, and that he often seems to forget Induction altogether. This is the case not only in his First Philosophy, or Metaphysics, but also in his Physics. He there professes to trace out what he calls beginnings, causes, elements, &c., and he analyses most of the highest generalities. Yet still these analytical enquiries (whatever be their value) are usually, if not always, kept in subordination to the counter-theory that he had set up against the Platonic Realism. Complete reality resides (he constantly repeats) only in the particular sensible substances and sensible facts or movements that compose the aggregate Kosmos; which is not generated, but eternal, both as to substance and as to movement. If these sensible substances disappear, nothing remains. The beginnings and causes exist only relatively to these particulars. Form, Matter, Privation, are not real Beings, antecedent to the Kosmos, and pre-existent generators of the substances constituting the Kosmos; they are logical fragments or factors, obtained by mental analysis and comparison, assisting to methodize our philosophical point of view or conception of those substances, but incapable of being understood, and having no value of their own, apart from the substances. Some such logical analysis (that of Aristotle or some other) is an indispensable condition even of the most strictly inductive philosophy.

There are some portions of the writings of Aristotle (especially the third book *De Animâ* and the twelfth book of the *Metaphysica*) where he appears to lose sight of the limit here indicated; but, with few exceptions, we find him constantly remembering, and often repeating, the great truth formulated in his *Categories*: that full or substantive reality resides only in the *Hoc Aliquid*, with its predicates implicated with it, and that even the highest of these predicates (Second Substances) have no reality apart from some one of their particulars. We must recollect that, though Aristotle denies to the predicates a *separate* reality, he recognizes in them an *adjective* reality, as accompaniments and determinants: he contemplates all the ten *Categories* as distinct varieties of existence.* This is sufficient as a basis for abstraction, whereby we can

the *Phædon* (p. 96, B) as one among the intellectual phases that Sokrates had passed through in the course of his life, without continuing in them.

* Aristot. *Metaphys.* Δ. p. 1017, a. 23: ὁσαχῶς γὰρ λέγεται (τὰ σχήματα τῆς κατηγορίας), τοσαυταχῶς τὸ εἶναι σημαίνει.

name them and reason upon them as distinct objects of thought or points of view, although none of them come into reality except as implicated with a sensible particular. Of such reasoning Aristotle's First Philosophy chiefly consists; and he introduces peculiar phrases to describe this distinction of reason between two different points of view, where the real object spoken of is one and the same. The frequency of the occasions taken to point out that distinction marks his anxiety to keep the First Philosophy in harmony with the theory of Reality announced in his *Categories*.

The *Categories* of Aristotle appear to have become more widely known than any other part of his philosophy. They were much discussed by the sects coming after him; and, even when not adopted, were present to speculative minds as a scheme to be amended.* Most of the arguments turned upon the nine later *Categories*: it was debated whether these were properly enumerated and discriminated, and whether the enumeration as a whole was exhaustive.

With these details, however, the question between Realism and its counter-theory (whether Conceptualism or Nominalism) is not materially concerned. The standard against Realism was raised by Aristotle in the First Category, when he proclaimed the *Hoc Aliquid* to be the only complete *Ens*, and the Universal to exist only along with it as a predicate, being nothing in itself apart; and when he enumerated Quality as one among the predicates, and nothing beyond. In the Platonic Realism (*Phædon*, *Timæus*, *Parmenides*) what Aristotle called Quality was the highest and most incontestable among all Substances—the Good, the Beautiful, the Just, &c.; what Aristotle called Second Substance was also Substance in the Platonic Realism, though not so incontestably; but what Aristotle called First Substance was in the Platonic Realism no Substance at all, but only one among a multitude of confused and transient shadows. It is in the First and Third *Categories* that the capital antithesis of Aristotle against the Platonic Realism is contained. As far as that antithesis is concerned, it matters little whether the aggregate of predicates be subdivided under nine general heads (*Categories*) or under three.

In the century succeeding Aristotle, the Stoic philosophers altered his *Categories*, and drew up a new list of their own, containing only four distinct heads instead of ten. We have no

* This is the just remark of Trendelenburg, *Kategorienlehre*, p. 217.

record or explanation of the Stoic Categories from any of their authors; so that we are compelled to accept the list on secondary authority, from the comments of critics, mostly opponents. But, as far as we can make out, they retained in their First Category the capital feature of Aristotle's First Category—the primacy of the First Substance or *Hoc Aliquid* and its exclusive privilege of imparting reality to all the other Categories. Indeed, the Stoics seem not only to have retained this characteristic, but to have exaggerated it. They did not recognize so close an approach of the Universal to the Particular, as is implied by giving to it a second place in the same Category, and calling it Second Substance. The First Category of the Stoics (Something or Subject) included only particular substances; all Universals were by them ranked in the other Categories, being regarded as negations of substances, and designated by the term Non-Somethings — Non-Substances.*

The Neo-Platonist Plotinus, in the third century after the Christian era, agreed with the Stoics (though looking from the opposite point of view) in disapproving Aristotle's arrangement of Second Substance in the same Category with First Substance.^b He criticizes at some length both the Aristotelian list of Categories, and the Stoic list; but he falls back into the Platonic and even the Parmenidean point of view. His capital distinction is between Cogitables and Sensibles. The Cogitables are in his view the most real (*i.e.* the Aristotelian Second Substance is more real than the First); among them the highest, *Unum* or *Bonum*, is the grand fountain and sovereign of all the rest. Plotinus thus departed altogether from the Aristotelian Categories, and revived the Platonic or Parmenidean Realism; yet not without some Aristotelian modifications. But it is remarkable that in this departure his devoted friend and scholar Porphyry did not follow him. Porphyry not only composed an Introduction to the Categories of Aristotle, but also vindicated them at great length, in a separate commentary, against the censures of Plotinus; Dexippus, Jamblichus, and Simplicius, followed in the same track.^c Still, though Porphyry stood forward both as admirer and champion of the Aristotelian Categories, he did not consider that the question raised by the First Category of Aristotle against the Platonic Realism was finally decided. This is suffi-

* Prantl, *Gesch. der Logik*, I. vi. p. 420: οὐτινα τὰ κοινὰ παρ' αὐτοῖς λέγεται, &c.

^b Plotinus, *Ennead.* vi. 1, 2.

^c Simplicius, *Schol. in Aristotel. Categ.* p. 40, a, b, Brandis.

ciently proved by the three problems cited above out of the Introduction of Porphyry; where he proclaims it to be a deep and difficult enquiry, whether Genera and Species had not a real substantive existence apart from the individuals composing them. Aristotle, both in the Categories and in many other places, had declared his opinion distinctly in the negative against Plato; but Porphyry had not made up his mind between the two, though he insists, in language very Aristotelian, on the distinction between First and Second Substance.*

Through the translations and manuals of Boëthius and others, the Categories of Aristotle were transmitted to the Latin Churchmen, and continued to be read even through the darkest ages, when the Analytica and the Topica were unknown or neglected. The Aristotelian discrimination between First and Second Substance was thus always kept in sight, and Boëthius treated it much in the same manner as Porphyry had done before him.^b Alcuin, Rhabanus Maurus, and Eric of Auxerre,^c in the eighth and ninth centuries, repeated what they found in Boëthius, and upheld the Aristotelian tradition unimpaired. But Scotus Erigena (*d.* 880 A.D.) took an entirely opposite view, and reverted to the Platonic traditions, though with a large admixture of Aristotelian ideas. He was a Christian Platonist, blending the transcendentalism of Plato and Plotinus with theological dogmatic influences (derived from the Pseudo-Dionysius Areopagita and others) and verging somewhat even towards Pantheism. Scotus Erigena revived the doctrine of Cogitable *Universalia extra rem* and *ante rem*. He declared express opposition to the arrangement of the First Aristotelian Category, whereby the individual was put first, in the character of subject; the Universal second, in the character only of predicate; complete reality belonging to the two in conjunction. Scotus maintained that the Cogitable or Incorporeal Universal was the first, the true and complete real; from whence the sensible individuals were secondary, incomplete, multiple, derivatives.^d But, though he thus adopts and enforces the Platonic theory of Universals *ante rem* and *extra rem*, he does not think himself obliged to deny that Universals may be *in re* also.

* Prantl, Geschichte der Logik, I. xi. p. 634, n. 69. Upon this account Prantl finds Porphyry guilty of "empiricism in its extreme crudeness"—"jene äusserste Rohheit des Empirismus."

^b Prantl, Geschichte der Logik, I. xii.

p. 685; Trendelenburg, Kategorienlehre, p. 245.

^c Ueberweg, Geschichte der Philosophie der scholastischen Zeit, p. 13.

^d Prantl, Gesch. der Logik, II. xiii. pp. 29-35.

The contradiction of the Aristotelian traditions, so far as concerns the First Category, thus proclaimed by Scotus Erigena, appears to have provoked considerable opposition among his immediate successors. Nevertheless he also obtained partizans. Remigius of Auxerre and others not only defended the Platonic Realism, but carried it as far as Plato himself had done; affirming that not merely Universal Substances, but also Universal Accidents, had a real separate existence, apart from and anterior to individuals.* The controversy for and against the Platonic Realism was thus distinctly launched in the schools of the Middle Ages. It was upheld both as a philosophical revival, and as theologically orthodox, entitled to supersede the traditional counter-theory of Aristotle.

* Prantl, *Gesch. der Logik*, II. xiii. pp. 44, 45-47.

II.

FIRST PRINCIPLES.

A.—*Sir William Hamilton on Aristotle's Doctrine.*

IN reading attentively Hamilton's 'Dissertation on the Philosophy of Common Sense' (Note A, annexed to ed. of Reid's Works, p. 742, seq.), I find it difficult to seize accurately what he means by the term. It seems to me that he unsays in one passage what he says in another; and that what he tells us (p. 750, b.), viz. that "philosophers have rarely scrupled, on the one hand, quietly to supersede the data of consciousness, so often as these did not fall in with their pre-adopted opinions; and on the other clamorously to appeal to them as irrecusable truths, so often as they could allege them in corroboration of their own, or in refutation of a hostile, doctrine"—is illustrated by his own practice.

On page 752, a., he compares Common Sense to Common Law, and regards it as consisting in certain elementary feelings and beliefs, which, though in possession of all, can only be elicited and declared by philosophers, who declare it very differently. This comparison, however, sets aside unassisted Common Sense as an available authority. To make it so we must couple with it the same supplement that Common Law requires; that is, we must agree on some one philosopher as authoritative exponent of Common Sense. The Common Law of one country is different from that of another. Even in the same country, it is differently construed and set forth by different witnesses, advocates, and judges. In each country, a supreme tribunal is appointed to decide between these versions and to declare the law. The analogy goes farther than Hamilton wishes.

On the same page, he remarks:—"In saying (to use the words of Aristotle) simply and without qualification, that this or that *is a known truth*, we do not mean that it is in fact recognized by all, but only by such as are of a sound understanding; just as, in saying absolutely that a thing is wholesome, we must be held to mean, to such as are of a hale constitution." The passage of Aristotle's *Topica* here noticed will be found to have a different bearing from that which Hamilton gives it.

Aristotle is laying down (*Topica*, VI. iv. p. 141, a. 23—p. 142, a. 16)

the various lines of argument which may be followed out, when you are testing in dialectical debate a definition given or admitted by the opponent. There cannot be more than one definition of the same thing: the definition ought to declare the essence of the thing, which can only be done by means of *priora* and *notiora*. But *notiora* admits of two meanings: (1) *notiora simpliciter*; (2) *notiora nobis* or *singulis hominibus*. Under the first head, that which is *prius* is absolutely more knowable than that which is *posterius*; thus, a point more than a line, a line more than a plane, a plane more than a solid. But under the second head this order is often reversed: to most men the solid (as falling more under sense) is more knowable than the plane, the plane than the line, the line than the point. The first (*notiora simpliciter*) is the truly scientific order, suited to superior and accurate minds, employed in teaching, learning, and demonstration (p. 141, a. 29: *καθάπερ ἐν ταῖς ἀποδείξεσιν, οὕτω γὰρ πᾶσα διδασκαλία καὶ μάθησις ἔχει*,—b. 16: *ἐπιστημονικώτερον γὰρ τὸ τοιοῦτόν ἐστιν*). The second (*notiora nobis*) is adapted to ordinary minds, who cannot endure regular teaching, nor understand a definition founded on the first order. But definitions founded on the second alone (Aristotle says) are not satisfactory, nor do they reveal the true essence of the thing defined: there can be no satisfactory definition unless what is *notius simpliciter* coincides with what is *notius nobis* (p. 141, b. 24). He then proceeds to explain what is meant by *notius simpliciter*; and this is the passage quoted by Hamilton. After having said that the *notiora nobis* are not fixed and uniform, but vary with different individuals, and even in the same individual at different times, he goes on: "It is plain therefore that we ought not to define by such characteristics as these (the *notiora nobis*), but by the *notiora simpliciter*: for it is only in this way that we can obtain a definition one and the same at all times. Perhaps, too, the *notius simpliciter* is not that which is knowable to all, but that which is knowable to those who are well trained in their intelligence; just as the absolutely wholesome is that which is wholesome to those who are well constituted in their bodies" (*ἴσως δὲ καὶ τὸ ἀπλῶς γινώσκον οὐ τὸ πᾶσι γινώσκον ἐστιν, ἀλλὰ τὸ τοῖς εὖ διακειμένοις τὴν διάνοιαν, καθάπερ καὶ τὸ ἀπλῶς ὑγιεινὸν τὸ τοῖς εὖ ἔχουσιν τὸ σῶμα*—p. 142, a. 9).

Hamilton's translation misses the point of Aristotle, who here repeats what he frequently also declares in other parts of his writings (see *Analyt. Post. I. i.* p. 71, b. 33), namely, the contrast and antithesis between *notius simpliciter* (or *naturá*) and *notius nobis*. This is a technical distinction of his own, which he had explained very fully in the page preceding the words translated by Hamilton;

and the words are intended as a supplementary caution, to guard against a possible misunderstanding of the phrase. Hamilton's words—"saying simply, and without qualification, that this or that is a known truth," do not convey Aristotle's meaning at all; again, the words—"such as are of a sound understanding," fail equally in rendering what Aristotle means by τοῖς εὖ διακειμένοις τὴν διάνοιαν. Aristotle tells us distinctly (in the preceding part of the paragraph) that he intends to contrast the few minds scientific or prepared for scientific discipline, with the many minds unscientific or unprepared for such discipline: he does not intend to contrast "men of sound understanding" with men "not of sound understanding."

It appears to me that Hamilton has here taken a passage away from its genuine sense in the Aristotelian context, and has pressed it into his service to illustrate a view of his own, foreign to that of Aristotle. He has done the like with some other passages, to which I will now advert.

What he says, pp. 764-766, about Aristotle's use of the term *ἀξίωμα* is quite opposed to the words of Aristotle himself, who plainly certifies it as being already in his time a technical term with mathematicians (Met. Γ. p. 1005, a. 20). On p. 766, a., Hamilton says that the word *ἀξίωμα* is not used in any work extant prior to Aristotle in a logical sense. This is true as to any *work* remaining to us, but Aristotle himself talks of previous philosophers or reasoners who had so used it; thus he speaks of κατὰ τὸ Ζήνωνος *ἀξίωμα* (Metaph. B. p. 1001, b. 7)—"according to the assumption laid down by Zeno as authoritative." Of this passage Hamilton takes no notice: he only refers to the *Topica*, intimating a doubt (in my judgment groundless and certainly professed by few modern critics, if any) whether the *Topica* is a genuine work of Aristotle. In the time of Aristotle, various mathematical teachers laid down Axioms, such as, If equals be taken from equals, the remainders will be equal; In all propositions, either the affirmative or the negative must be true, &c. But the case of Zeno shows us that other philosophers also laid down Axioms of their own, which were not universally accepted by others. What Hamilton here says, about Axioms, has little pertinence as a contribution to the Philosophy of Common Sense.

Again, Hamilton says, p. 770, a.: "The native contributions by the mind itself to our concrete cognitions have, prior to their elicitation into consciousness through experience, only a *potential*, and in actual experience only an *applied*, *engaged*, or *implicate*, existence."

These words narrow the line of distinction between the two opposite schools so much, that I cannot see where it is drawn. Every germ has in it the *potentialities* of that which it will afterwards become. No one disputes that a baby just born has mental *potentialities* not possessed by a puppy, a calf, or an acorn. What is the difference between cognitions *elicited through experience*, and cognitions *derived from experience*? To those who hold the doctrine of Relativity, both our impressions of sense and our mental activities (such as memory, discrimination, comparison, abstraction, &c.) are alike indispensable to experience. The difference, so far as I can see, between Hamilton and the Inductive School, is not so much about the process whereby cognitions are acquired, as about the mode of testing and measuring the authority of those cognitions when acquired. Hamilton will not deny that many of the cognitions which he describes as elicited by experience are untrue or exaggerated. How are we to discriminate these from the true? The Inductive School would reply: "By the test of experience, and by that alone: if these cognitions, which have been elicited in your mind through experience, are refuted or not confirmed when tested by subsequent experience carefully watched and selected for the purpose, they are not true or trustworthy cognitions." But Hamilton would not concur in this answer: he would say that the cognitions, though elicited *through* experience, did not derive their authority or trustworthiness *from* experience, but were binding and authoritative in themselves, whether confirmed by experience or not. In speaking about Axioms, p. 764, b., he says: "Aristotle limited" (this is not correct: Aristotle did not *limit* as here affirmed) "the expression Axiom to those judgments which, on occasion of experience, arise naturally and necessarily in the conscious mind, and which are therefore virtually prior to experience." That they are not prior to experience in *order of time*, is admitted in the words just cited from Hamilton himself: he means, therefore, prior in *logical authority*—carrying with them the quality of *necessity*, even though experience may afford no confirmation of them. This is what he says, on pp. 753–754, about causality: metaphysical causality *must* be believed, as a necessary and subjective law of the observer—though there is no warrant for it in experience.

The question between Hamilton and the Inductive School, I repeat, is not so much about the psychological genesis of beliefs, as about the test for distinguishing true from false or uncertified beliefs, among those beliefs which arise, often and usually, in the minds of most men. Is there any valid test other than experience itself, as intentionally varied by experiments and interpreted by

careful Induction? Are we ever warranted in affirming what transcends experience, except to the extent to which the inference from Induction (from some to all) always transcends actual observation? This seems to me the real question at issue between the contending schools of Metaphysics. Hamilton, while he rejects experience as the test, furnishes no other test whereby we can discriminate the erroneous beliefs "which are elicited into consciousness through experience," from the true beliefs which are elicited in like manner.

In discussing the doctrine which Hamilton and other philosophers entitle Common Sense (in the metaphysical import which they assign to it), it is proper to say a few words on the legitimate meaning of this phrase, before it was pressed into service by a particular school of metaphysicians. Every one who lives through childhood and boyhood up to man's estate will unavoidably acquire a certain amount of knowledge and certain habits of believing, feeling, judging, &c.; differing materially in different ages and countries, and varying to a less degree in different individuals of the same age and country, yet still including more or less which is common to the large majority. That fire burns; that water quenches thirst and drowns; that the sun gives light and heat; that animals are all mortal and cannot live long without nourishment,—these and many other beliefs are not possessed by a very young child, but are acquired by every man as he grows up, though he cannot remember how or when he learnt them. The sum total of the beliefs thus acquired, by the impressions and influences under which every growing mind must pass, constitutes the Common Sense of a particular age and country. A person wanting in any of them would be considered, by the majority of the inhabitants, as deficient in Common Sense. If I meet an adult stranger, I presume as a matter of course that he has acquired them, and I talk to him accordingly. I also presume (being in England) that he has learnt the language of the country; and that he is familiar with the forms of English speech whereby such beliefs and their correlative disbeliefs are enunciated. If I affirm to him any one of these beliefs, he assents to it at once: it appears to him self-evident—that is, requiring no farther or extraneous evidence to support it. Though it appears to him self-evident, however, the proposition may possibly be false. To a Greek of the Aristotelian age, no proposition could appear more self-evident than that of the earth being at rest. No term can be more thoroughly relative than the term *self-evident*: that which appears so to one man, will often not appear so to another, and may sometimes appear altogether untrue.

But, if we suppose an individual to whom one of these beliefs

does not appear self-evident, and who requires proof, he will not be satisfied to be told that every one else believes it, and that it is a dictate of Common Sense. He probably knows that already, and yet, nevertheless, he is not convinced. Aristarchus of Samos was told doubtless, often enough, that the doctrine of the earth being at rest was the plain verdict of Common Sense; but he did not the less controvert it. You must produce the independent proof which the recusant demands; and, if your doctrine is true and trustworthy, such proof can be produced. I will here remark that, in so far as Common Sense can properly be quoted as an authority or presumptive authority, it is such only in the sense proclaimed by Herakleitus and La Mennais, as cited by Hamilton, pp. 770-771: "as a magazine of ready-fabricated dogmas." Hamilton finds fault with both of them; but it appears to me that they rightly interpret, and that he wrongly interprets, what Common Sense, as generally understood, is; and moreover, that most of the other authorities whom he himself quotes understand the phrase as these two understand it. Common Sense is "a magazine of ready-fabricated dogmas," as La Mennais (see p. 771, a.) considers it—dogmas assumed as self-evident, and as requiring no proof. It only becomes "a source of elementary truths" when analysed and remodelled by philosophers. Now philosophers differ much in their mode of analysing it (as Hamilton himself declares emphatically), and bring out of it different elementary truths; each of them professing to follow Common Sense and quoting Common Sense as warranty. It is plain that Common Sense is no authority for either one of two discrepant modes of analysis. Its authority counts for those dogmas out of which the analysis is made, in so far as Common Sense is authoritative at all.

Hamilton cites or indicates thirteen different Aristotelian passages, in order to support his view that Aristotle is to be numbered among the champions of authoritative Common Sense. It will be seen that most of the passages prove nothing, and that only one proves much, in favour of that view. I shall touch upon them *seriatim*.

(a) "First truths are such as are believed, not through aught else" (say rather *through other truths*) "but through themselves alone. For, in regard to the first principles of science, we ought not to require the reason *Why*; for each such principle behoves to be itself a *belief* in and of itself."* After the words *reason Why*, Hamilton inserts the following additional words of his own in brackets—"but only the fact *That* they are given."

* Aristot. Topic. I. i. p. 100, a. 30; Hamilton's Reid, p. 772, a.

I demur to the words in brackets, as implying an hypothesis not contained in Aristotle; who says only that the truth affirmed by the teacher must be such as the learner is prepared to believe without asking any questions. It may be an analytical truth (*sensu Kantiano*), in which the predicate asserts only what the learner knows to be already contained in the definition of the subject. It may be a synthetical truth; yet asserting only what he is familiar with by constant, early, uncontradicted, obvious, experience. In either case, he is prepared to believe it *at once*; and thus the conditions of a First Scientific Truth are satisfied, as here described by Aristotle; who says nothing about the truth *being given*.

The next passage cited (b) is from the *Analytica Posteriora* (the reference is printed by mistake *Priora*). According to Hamilton, Aristotle says:—"We assert not only that science does exist, but also that there is given a certain beginning or principle of science, *in so far as* (or, on another interpretation of the term η —*by which*) we recognize the import of the terms."* I think Hamilton has not exactly rendered the sense of the original when he translates it—"we recognize the import of the terms;" and he proceeds to add expository words of his own which carry us still farther away from what I understand in Aristotle. If Hamilton's rendering is correct, all the *principia* of Science would be analytical propositions (*sensu Kantiano*), which I do not think that Aristotle intended to affirm or imply. In the last chapter of the *Analytica Posteriora*, Aristotle not only affirmed that there were First Principles of Science, but described at length the inductive process by which we reached them; referring them ultimately to the cognizance and approval of *Noûs* or Intellect. What Aristotle means is, that, in ascending from propositions of lower to propositions of higher universality, we know when we have reached the extreme term of ascent; and this forms the *principium*.

Sir W. Hamilton next gives us another passage (c) from the *Analytica Posteriora*, in which Aristotle affirms that the First Principles must be believed in a superlative degree, because we know and believe all secondary truths through them:^b a doctrine which

* Aristot. Anal. Post. I. iii. p. 72, b. 23: ταῦτά τ' οὖν οὕτω λέγομεν, καὶ οὐ μόνον ἐπιστήμην ἀλλὰ καὶ ἀρχὴν ἐπιστήμης εἶναι τινὰ φάμεν, ἥ τοὺς ὅρους γνωρίζομεν.

Neither Philoponus, nor Buhle, nor M. Barthelémy St.-Hilaire, translate the words τοὺς ὅρους γνωρίζομεν in the same way as Sir W. Hamilton. It rather seems

to me that the words mean *terms or limits of regress*, which coincides with the paraphrase of Philoponus: τοῦτω γὰρ (τῷ νῷ) τὰς ἀρχαιοειδεστάτας καὶ οἰοῦναι ὅρους οὕσας γνωρίζομεν (Schol. p. 201, b. 13, Br.), as well as substantially with the note of M. St.-Hilaire.

^b Analyt. Poster. I. ii. p. 72, a. 27.

appears to me to require both comment and limitation; but about which I say nothing, because, even granting it to be true, I do not see how it assists the purpose—to prove that Aristotle is the champion of authoritative Common Sense. Nor do I find any greater proof in another passage previously (p. 764, b.) produced from Aristotle: “Of the immediate principles of syllogism, that which cannot be demonstrated, but which it is not necessary to possess as the pre-requisite of all learning, I call *Thesis*: and that *Axiom*, which he who would learn ought, must himself bring (and not receive from his instructor). For some such principles there are; and it is to these that we are accustomed to apply the name.”^a Such principles there doubtless are, which the learner must bring with him; but Aristotle does not assert, much less prove, that they are intuitions given by authoritative Common Sense. Nay, in the passage cited in my former page, he both asserted and proved that the *principia* of Science were raised from Sense by Induction. The learner, when he comes to be taught, must bring some of these *principia* with him, if he is to learn Science from his teacher; just as he must also bring with him a knowledge of the language, of the structure of sentences, of the forms for affirmation and denial, &c., and various other requisites. A recruit, when first coming to be drilled, must bring with him a certain power of walking and of making other movements of the limbs. But these pre-requisites, on the part of the learner as well as on that of the recruit, are not intuitive products or inspirations of the mind: they are acquirements made by long and irksome experience, though often forgotten in its details. We are not to reason upon the learner or the recruit as if they were children just born.

The passages out of the *Rhetorica* and the *Metaphysica* (cited on p. 772, b., and marked *d* and *e*) are hardly worth notice. But that which immediately follows (marked *f*), out of the *Nikomachean Ethica*, is the most pertinent of all that are produced. Hamilton writes:—“Arguing against a paradox of certain Platonists in regard to the Pleasurable, Aristotle says—‘But they who oppose themselves to Eudoxus, as if what all nature desiderates were not a good, talk idly. For what *appears to all*, that we affirm *to be*; and he who would subvert this belief, will himself assuredly advance nothing more deserving of credit.’”^b Compare also L. vii. c.

^a *Analyt. Poster. I. iii. p. 72, a. 17:* τοῦτο γὰρ μάλιστα ἐπὶ τοῖς τοιοῦτοις εἰσθαμεν ὄνομα λέγειν—“we are for the most part accustomed:” Hamilton has not translated the word *μάλιστα*, which it would have been better for him to do,

because he founds upon the passage an argument to prove that Aristotle limited in a certain way the sense of the word *Axiom*.

^b *Aristot. Ethic. Nik. X. ii. p. 1172, b. 36:* ὃ γὰρ πᾶσι δοκεῖ, τοῦτ' εἶναι φάμεν

13 (14). In his paraphrase of the above passage, the Pseudo-Andronicus in one place uses the expression *common opinion*, and in another all but uses (what indeed he could hardly do in this meaning as an Aristotelian, if indeed in Greek at all) the expression *common sense*, which D. Heinsius in his Latin version actually employs." Thus far Hamilton; but the words of Aristotle which immediately follow are even stronger:—"For, in so far as foolish creatures desire pleasure, the objection taken would be worth something; but, when intelligent creatures desire it also, how can the objectors make out their case? Even in mean and foolish creatures, moreover, there is perhaps a certain good natural appetite, superior to themselves, which aims at their own good."^a Or as Aristotle (according to some critics, the Aristotelian Eudemus) states it in the Seventh Book of the Nikomachean Ethica, referred to by Sir W. Hamilton without citing it:—"Perhaps all creatures (brutes as well as men) pursue, not that pleasure which they think they are pursuing, nor what they would declare themselves to be pursuing, but all of them the same pleasure; for all creatures have by nature something divine."^b

In this passage, Aristotle does really appear as the champion of authoritative Common Sense. He enunciates the general principle: That which appears to all, that we affirm to be. And he proceeds to claim (with the qualification of *perhaps*) for this universal belief a divine or quasi-divine authority; like Hesiod in the verses cited by Sir W. Hamilton, p. 770, b., and like Dr. Reid in the motto prefixed to his 'Inquiry into the Human Mind on the Principles of Common Sense.' If Aristotle had often spoken in this way, he would have been pre-eminently suitable to figure in Sir W. Hamilton's list of authorities. But the reverse is the fact. In the Analytica and Topica, Aristotle is so far from accepting the opinion and belief of all as a certificate of truth and reality, that he expressly ranks the matters so certified as belonging to the merely probable, and includes them in his definition thereof. Universal

δ' δ' ἀναιρῶν ταύτην τὴν πίστιν, οὐ πάνυ πιστότερα ἐρεῖ.

^a Aristot. Ethik. Nik. X. ii. p. 1173, a. 2: ἢ μὲν γὰρ τὰ ἀνόητα ὁρέγεται αὐτῶν, ἢν ἂν τι τὸ λεγόμενον· εἰ δὲ καὶ τὰ φρόνιμα, πῶς ἂν λέγοιεν τι; ἴσως δὲ καὶ ἐν τοῖς φαύλοις ἐστὶ τι φυσικὸν ἀγαθὸν κρείττον ἢ καθ' αὐτά, ὃ ἐφίεται τοῦ οἰκείου ἀγαθοῦ. (I adopt here the text as given by Michelet, η μὲν, in place of εἰ μὲν, but not in

leaving out τὸ before λεγόμενον.) I think the sentence would stand better if ἀγαθὸν were omitted after φυσικόν.

^b Eth. Nikom. VII. xiv. p. 1153, b. 31: ἴσως δὲ καὶ διώκουσιν οὐχ ἢν οἰοῖται (ἡδονήν) οὐδ' ἢν ἂν φαίεν, ἀλλὰ τὴν αὐτήν· πάντα γὰρ φύσει ἔχει τι θεῖον. The sentiment is here declared even more strongly respecting the appetite of all animals—brutes as well as men.

belief counts for more or less, as a certificate of the truth of what is believed, according to the matter to which it refers; and there are few matters on which it is of greater value than pleasure and pain. Yet even upon this point Aristotle rejects the authority of the many, and calls upon us to repose implicit confidence in the verdict of the just and intelligent individual, whom he enthrones as the measure. "Those alone are pleasures" (says Aristotle) "which appear pleasures to this man; those alone are pleasant things in which he takes delight. If things which are revolting to him appear pleasurable to others, we ought not to wonder, since there are many corruptions and degenerations of mankind; yet these things are not really pleasurable, except to these men and to men of like disposition."* This declaration, repeated more than once in the *Nikomachean Ethica*, and supported by *Analytica* and *Topica*, more than countervails the opposite opinion expressed by Aristotle, in the passage where he defends Eudoxus.

The next passage (g) produced by Sir W. Hamilton is out of the *Eudemian Ethica*. But this passage, when translated more fully and exactly than we read it in his words, will be found to prove nothing to the point which he aims at. He gives it as follows, p. 773, a.:—"But of all these we must endeavour to seek out rational grounds of belief, by adducing manifest testimonies and authorities. For it is the strongest evidence of a doctrine, if all men can be adduced as the manifest confessors of its positions; because every individual has in him a kind of private organ of the truth. Hence we ought not always to look to the conclusions of reasoning, but frequently rather to what appears [and is believed] to be." The original is given below.^b

* Aristot. Ethic. Nik. X. v. p. 1176, a. 15: δοκεῖ δ' ἐν ἅπασιν τοιοῦτοις εἶναι τὸ φαινόμενον τῷ σπουδαίῳ. εἰ δὲ τοῦτο καλῶς λέγεται, καθάπερ δοκεῖ, καὶ ἔστιν ἐκάστου μέτρον ἡ ἀρετὴ καὶ ὁ ἀγαθὸς ἢ τοιοῦτος, καὶ ἡδοναὶ εἶναι αἱ τοῦτῳ φαινόμεναι, καὶ ἡδέα οἷς οὗτος χαίρει &c. Ib. vi. p. 1176, b. 24: καθάπερ οὖν πολλὰς εἴρηται, καὶ τίμια καὶ ἡδέα ἐστὶ τὰ τῷ σπουδαίῳ τοιαῦτα ὄντα.

^b Aristot. Eth. Eud. I. vi. p. 1218, b. 26: πειρατέον δὲ περὶ τούτων πάντων ζητεῖν τὴν πίστιν διὰ τῶν λόγων, μαρτυροῖς καὶ παραδείγμασι χρώμενοι τοῖς φαινόμενοις. κρᾶτιστον μὲν γὰρ πάντας ἀνθρώπους φαίνεσθαι συνομολογούντας τοῖς ῥηθησομένοις, εἰ δὲ μὴ, τρόπον γέ τινα πάντως, ὅπερ μεταβιβάζοντο ποιήσουσιν· ἔχει γὰρ ἕκαστος οἰκεῖόν τι πρὸς

τὴν ἀλήθειαν, ἐξ ὧν ἀναγκαῖον δεικνύναι πως περὶ αὐτῶν. ἐκ γὰρ τῶν ἀληθῶς μὲν λεγομένων, οὐ σαφῶς δέ, προϊούσιν ἔσται καὶ τὸ σαφῶς, μεταλαμβάνουσιν αἱ τὰ γνωριμώτερα τῶν εἰωθότων λέγεσθαι συγκεχυμένως. Then after an interval of fifteen lines: καλῶς δ' ἔχει καὶ τὸ χωρὶς κρίνειν τὸν τῆς αἰτίας λόγον καὶ τὸ δεικνύμενον, διὰ τε τὸ ῥηθὲν ἀρτίως, ὅτι προσέχειν οὐ δεῖ πάντα τοῖς διὰ τῶν λόγων, ἀλλὰ πολλάκις μᾶλλον τοῖς φαινόμενοις (νῦν δ' ὅπου ἂν λύειν μὴ ἔχωσιν, ἀναγκάζονται πιστεῦναι τοῖς εἰρημένοις), καὶ διότι πολλάκις τὸ μὲν ὑπὸ τοῦ λόγου δεδειχθαι δοκοῦν ἀληθὲς μὲν ἔστιν, οὐ μέντοι διὰ ταύτην τὴν αἰτίαν δι' ἣν φησιν ὁ λόγος. ἔστι γὰρ διὰ ψεύδους ἀληθὲς δεῖξαι· δῆλον δ' ἐκ τῶν Ἀναλυτικῶν.

The following is a literal translation, restoring what Sir W. Hamilton omits:—"But, respecting all these matters, we must endeavour to seek belief through general reasoning, employing the appearances before us (i.e. the current *dicta* and *facta* of society) as testimonies and examples. For it is best that all mankind should be manifestly in agreement with what we are about to say; but, if that cannot be, that at all events they should be in some sort of agreement with us; which they will come to be when brought round (by being addressed in the proper style). For every man has in him some tendencies favourable to the truth, and it is out of these that we must somehow or other prove our conclusions. By taking our departure from what is said around us truly but not clearly, we shall by gradual advance introduce clearness, taking along with us such portion of the confused common talk as is most congruous to Science. . . . It is well also to consider apart the causal reasoning (syllogistic, deductive premisses), and the conclusion shown: first, upon the ground just stated, that we must not pay exclusive attention to the results of deductive reasoning, but often rather to apparent facts, whereas it often happens now that, when men cannot refute the reasoning, they feel constrained to believe in the conclusion; next, because the conclusion, shown by the reasoning, may often be true in itself, but not from the cause assigned in the reasoning. For a true conclusion may be shown by false premisses; as we have seen in the *Analytica*."

Whoever reads the original words of Aristotle (or Eudemus) will see how much Sir W. Hamilton's translation strains their true meaning. *Κράτιστον* does not correspond to the phrase—"it is the strongest evidence of a doctrine." *Κράτιστον* is the equivalent of *ἀριστον*, as we find in chap. iii. of this Book of the Eudemian *Ethica* (p. 1215, a. 3): *ἐπεὶ δ' εἰσὶν ἀπορίαι περὶ ἐκάστην πραγματείαν οἰκεῖαι, δῆλον ὅτι καὶ περὶ βίου τοῦ κρατίστου καὶ ζωῆς τῆς ἀρίστης εἰσὶν*. Nor ought the words *οἰκεῖόν τι πρὸς τὴν ἀλήθειαν* to be translated—"a kind of private organ of the truth:" they mean simply—"something in him favourable or tending towards the truth," as we read in chap. ii. of this same Book—*οἰκεῖόν πρὸς εὐεξίαν* (p. 1214, b. 22). Moreover, Hamilton has omitted to translate both the words preceding and the words following; accordingly he has missed the real sense of the passage. Aristotle inculcates upon the philosopher never to neglect the common and prevalent opinions, but to acquaint himself with them carefully; because, though these opinions are generally full of confusion and error (*εἰκὴ γὰρ λέγουσι σχεδὸν περὶ πάντων (οἱ πολλοί)*)—*Ethic. Eudem. I. iii. p. 1215, a. 1*), he will find in them partial correspondences with the truth, of

which he may avail himself to bring the common minds round to better views; but, unless he knows pretty well what the opinions of these common minds are, he will not be able to address them persuasively. This is the same reasonable view which Aristotle expresses at the beginning of the *Topica* (in a passage already cited above), respecting the manner of dealing proper for a philosopher towards current opinion. But it does not at all coincide with the representation given by Hamilton.

The next piece of evidence (*h*) which we find tendered is another passage out of the *Eudemian Ethica*. It will be seen that this passage is strained with even greater violence than the preceding. Hamilton writes as follows, first translating the words of Aristotle, then commenting on them:—"The problem is this—What is the beginning or principle of motion in the soul? Now it is evident, as God is in the universe, and the universe in God, that [I read *κινεῖν καί*—W. H.] the divinity in us is also, in a certain sort, the universal mover of the mind. For the principle of Reason is not Reason but something better. Now what can we say is better than even Science, except God?"* So far Hamilton's translation; now follows his comment:—"The import of this singular passage is very obscure. It has excited, I see, the attention, and exercised the ingenuity, of Pomponatius, J. C. Scaliger, De Raei, Leibnitz, Leidenfrost, Jacobi, &c. But without viewing it as of pantheistic tendency, as Leibnitz is inclined to do, it may be interpreted as a declaration, that Intellect, which Aristotle elsewhere allows to be pre-existent and immortal, is a spark of the Divinity; whilst its data (from which as principles more certain than their deductions, Reason, Demonstration, Science, must depart) are to be revered as the revelation of truths which would otherwise lie hid from man: That, in short,

"The voice of Nature is the voice of God."

By the bye, it is remarkable that this text was not employed by

* *Ethic. Eud. VII. xiv. p. 1248, a. 24*: τὸ δὲ ζητούμενον τοῦτ' ἐστὶ, τίς ἡ τῆς κινήσεως ἀρχὴ ἐν τῇ ψυχῇ; δῆλον δὲ, ὥσπερ ἐν τῷ δῶδε θεός, καὶ πᾶν (Fritzsch reads ἐν) ἐκείνῳ. κινεῖ γὰρ πᾶν τὰ ἐν ἡμῖν θεῖον. λόγου δ' ἀρχὴ οὐ λόγος ἀλλὰ τι κρείττον. τί οὖν ἂν κρείττον καὶ ἐπιστήμης εἴποι πλὴν θεός; Instead of εἴποι (the last word but two) Fritzsch reads εἴη καὶ νοῦ.

This is the passage translated by Sir W. Hamilton. The words of the original

immediately following are these: ἡ γὰρ ἀρετὴ τοῦ νοῦ ὄργανον καὶ διὰ τοῦτο οἱ πάλαι ἔλεγον—"εὐτυχεῖς καλοῦνται, οἱ ἂν ὁρμήσωσι κατορθοῦσιν ἔργοι ὄντες, καὶ βουλευέσθαι οὐ συμφέρει αὐτοῖς"—ἔχουσι γὰρ ἀρχὴν τοιαύτην ἡ κρείττων τοῦ νοῦ καὶ βουλεύσεως. οἱ δὲ τὸν λόγον τοῦτο δ' οὐκ ἔχουσι. καὶ ἐνθουσιασμοί τοῦτο δ' οὐ δύνανται. ἔργοι γὰρ ὄντες ἐπιτυγχάνουσι (so Fritzsch reads in place of ἀποτυγχάνουσι).

any of those Aristotelian philosophers who endeavoured to identify the Active Intellect with the Deity."

I maintain that this passage noway justifies the interpretation whereby Sir W. Hamilton ascribes to Aristotle a doctrine so large and important. The acknowledged obscurity of the passage might have rendered any interpreter cautious of building much upon it; but this is not all: Sir W. Hamilton has translated it separately, without any allusion to the chapter of which it forms part. This is a sure way of misunderstanding it; for it cannot be fairly construed except as bearing on the problem enunciated and discussed in that chapter. Aristotle (or Eudemus) propounds for discussion explicitly in this chapter a question which had been adverted to briefly in the earlier part of the Eudemian *Ethica* (I. i. p. 1214, a. 24)—What is the relation between good fortune and happiness? Upon what does good fortune depend? Is it produced by special grace or inspiration from the Gods? This question is taken up and debated at length in the chapter from which Sir W. Hamilton has made his extract. It is averred, as a matter of notoriety, that some men are fortunate. Though fools, they are constantly successful—more so than wiser men; and this characteristic is so steady, that men count upon it and denominate them accordingly. (See this general belief illustrated in the debate at Athens recorded by Thukydides, vi. 17, the good fortune of Nikias being admitted even by his opponents.) Upon what does this good fortune depend? Upon nature? Upon intelligence? Upon fortune herself as a special agent? Upon the grace and favour of the gods to the fortunate individual? Aristotle (or Eudemus) discusses the problem in a long and perplexed chapter, stating each hypothesis, together with the difficulties and objections attaching to it. As far as we can make out from an obscure style and a corrupt text, the following is the result arrived at. There are two varieties of the fortunate man: one is, he who succeeds through a rightly directed impulse, under special inspiration of the divine element within him and within all men; the other is, he who succeeds without any such impulse, through the agency of Fortune proper. The good fortune of the first is more constant than that of the second; but both are alike irrational or extra-rational.* Now

* *Eth. Eudem. VII. xiv. p. 1248, b. 3:*
φανερὸν δὲ ὅτι δύο εἶδη εὐτυχίας, ἡ μὲν
θεία, διδὲ καὶ δοκεῖ δ' εὐτυχῆς διὰ θεὸν
κατορθοῦν· οὗτος δ' ἐστὶν ὁ κατὰ τὴν
δρμὴν διορθωτικός, ὁ δ' ἕτερος ὁ παρὰ

τὴν δρμὴν ἄλογοι δ' ἀμφοτέροι. καὶ ἡ
μὲν συνεχὴς εὐτυχία μᾶλλον, αὕτη δ' οὐ
συνεχής.

The variety ὁ παρὰ τὴν δρμὴν διορθωτικός is exemplified in the *Physica*

the divine element in the soul is the beginning or principle of motion for all the manifestations in the soul—for reason as well as feeling: that which calls reason into operation, is something more powerful than reason. But in the intelligent man this divine mover only calls reason into operation, leaving reason, when once in operation, to its own force and guidance, of course liable to err; whereas in the fortunate man (first variety) the divine element inspires all his feelings and volitions, without any rational deliberation, so that he executes exactly the right thing at the right time and place, and accordingly succeeds.*

Aristotle (or Eudemus) thus obtains a psychological explanation (good or bad) of the fact, that there are fools who constantly succeed in their purposes, and wise men who frequently fail. He tells us that there is in the soul a divine principle of motion, which calls every thing—reason as well as appetite or feeling—into operation. But he says nothing of what Sir W. Hamilton ascribes to him—about Intellect as a spark of the Divinity, or about data of Intellect to be revered as the revelation of hidden truths. His drift is quite different and even opposite: to account for the success of individuals *without intellect* or reason—to bring forward a divine element in the soul, which dispenses with intellect, and which conducts these unintelligent men to success, solely by infusing the most opportune feelings and impulses. Sir W. Hamilton has misunderstood this passage, by taking no notice of the context and general argument to which it belongs.

Besides, when Hamilton represents Aristotle here as declaring: “That the data of Intellect are to be revered as the revelation of truths which would otherwise lie hid from man”—how are we to reconcile this with what we read two pages before (p. 771, a.) as the view of Aristotle about these same data of Intellect, that “they are themselves pre-eminently certain; and, if denied in words, they are still always mentally admitted”? Is it reasonable to say that the Maxim of Contradiction, and the proposition, That if equals be subtracted from equals, the remainders will be equal—are data “to be revered as the revelation of truths which would otherwise lie hid from man”? At any rate, I protest against the supposition that Aristotle has ever declared this.

(II. iv. p. 196, a. 4), where Aristotle again discusses *τύχη*: the case of a man who comes to the market-place on his ordinary business, and there by accident meets a friend whom he particularly

wished to see, but whom he never dreamt of seeing there and then.

* Eth. Eudem. VII. xiv. p. 1248, a. 27-32: *εὐτυχεῖς καλοῦνται*, &c. Compare also *ib.* p. 1247, b. 18.

The next two passages cited from Aristotle have really no bearing upon the authority of Common Sense in its metaphysical meaning: they are (i) from *Physic.* VIII. iii. and (k) from *De Gen. Animal.* III. x. Both passages assert the authority of sensible perception against general reasoning, where the two are conflicting. They assert, in other words, that general reasoning ought to be tested by experience and observation, and is not to be accepted when disallowed by these tests. (The only condition is, that the observation be exact and complete.) This is just, and is often said, though often disregarded in fact, by Aristotle. But it has no proper connexion with the problem about the trustworthiness of Common Sense.

Next Sir W. Hamilton refers us to (without citing) three other places of Aristotle. Of these, the first (*De Cœlo*, I. iii. p. 270, b. 4-13, marked l) is one which I am much surprised to find in a modern champion of Common Sense: since it represents Common Sense as giving full certificate to errors now exploded and forgotten. Aristotle had begun by laying down and vindicating his doctrine of the First or Celestial Body, forming the exterior portion of the Kosmos, radically distinct from the four elements; revolving eternally in uniform, perfect, circular motion, eternal, unchangeable, &c. Having stated this, he proceeds to affirm that the results of these reasonings coincide with the common opinions of mankind, that is, with Common Sense; and that they are not contradicted by any known observations of perceptive experience. This illustrates what I have before observed about Aristotle's position in regard to Common Sense. He does not extol it as an authority, or tell us that "it is to be revered as a revelation"; but, when he has proved a conclusion on what he thinks good grounds, he is glad to be able to show that it tallies with common opinions; especially when these opinions have some alliance with the received religion.

The next passage (m) referred to (*De Cœlo*, III. vii. p. 306, a. 13) has nothing to do with Common Sense, but embodies a very just protest by Aristotle against those philosophers who followed out their theories consistently to all possible consequences, without troubling themselves to enquire whether those consequences were in harmony with the results of observation.

There follows one other reference (n) which was hardly worth Sir W. Hamilton's notice. In *Meteorologic.* I. xiii. p. 349, a. 25, Aristotle, after reciting a theory of some philosophers (respecting the winds) which he considers very absurd, then proceeds to say:—"The many, without going into any enquiry at all, talk better sense than those who after enquiry bring forward such conclusions as these." It is not saying much for the authority of

Common Sense, to affirm that there have been occasionally philosophical theories so silly as to be worse than Common Sense.

B.—*Aristotle's Doctrine.*

IN regard to Aristotle, there are two points to be examined—

- I. What position does he take up in respect to the authority of Common Sense?
- II. What doctrine does he lay down about the first *principia* or beginnings of scientific reasoning—the ἀρχαὶ συλλογιστικαί?

I.—That Aristotle did not regard Cause, Substance, Time, &c., as Intuitions, is shown by the subtle and elaborate reasonings that he employs to explain them, and by the censure that he bestows on the erroneous explanations and shortcomings of others. Indeed, in regard to Causality, when we read the great and perplexing diversity of meaning which Aristotle (and Plato before him in the *Phædon*) recognizes as belonging to this term, we cannot but be surprised to find modern philosophers treating it as enunciating a simple and intuitive idea. But as to Common Sense—taking the term as above explained, and as it is usually understood by those that have no particular theory to support—Aristotle takes up a position at once distinct and instructive; a position (to use the phraseology of Kant) not dogmatical, but critical. He constantly notices and reports the affirmations of Common Sense; he speaks of it with respect, and assigns to it a qualified value, partly as helping us to survey the subject on all sides, partly as a happy confirmation, where it coincides with what has been proved otherwise; but he does not appeal to it as an authority in itself trustworthy or imperative.

Common Sense belongs to the region of Opinion. Now the distinction between matters of Opinion on the one hand, and matters of Science or Cognition on the other, is a marked and characteristic feature of Aristotle's philosophy. He sets, in pointed antithesis, Demonstration, or the method of Science—which divides itself into special subjects, each having some special *principia* of its own, then proceeds by legitimate steps of deductive reasoning from such *principia*, and arrives at conclusions sometimes universally true, always true for the most part—against Rhetoric and Dialectic, which deal with and discuss opinions upon all subjects, comparing opposite arguments, and landing in results more or less probable. Contrasting them as separate lines of intellectual procedure, Aristotle lays down a

theory of both. He recognizes the procedure of Rhetoric and Dialectic as being to a great degree the common and spontaneous growth of society; while Demonstration is from the beginning special, not merely as to subject, but as to persons, implying teacher and learner.

Rhetoric and Dialectic are treated by Aristotle as analogous processes. Of the matter of opinion and belief, with which both of them deal, he distinguishes three varieties: (1) Opinions or beliefs entertained by all; (2) By the majority; (3) By a minority of superior men, or by one man in respect to a science wherein he has acquired renown. It is these opinions or beliefs that the rhetorician and the dialectician attack and defend; bringing out all the arguments available for or against each.

The Aristotelian treatise on Rhetoric opens with the following words:—"Rhetoric is the counterpart of Dialectic; for both of them deal with such matters as do not fall within any special science, but belong in a certain way to the common knowledge of all. Hence every individual has his share of both, greater or less; for every one can, up to a certain point, both examine others and stand examination from others; every one tries to defend himself and to accuse others."* To the same purpose Aristotle speaks about Dialectic, in the beginning of the *Topica*:—"The dialectical syllogism takes its premisses from matters of opinion, that is, from matters that seem good to (or are believed by) all, or the majority, or the wise—either all the wise, or most of them, or the most celebrated." Aristotle distinguishes these matters of common opinion or belief from three distinct other matters:—(1) From matters that are not really such, but only in appearance; in which the smallest attention suffices to detect the false pretence of probability, while no one except a contentious Sophist ever thinks of advancing them; on the contrary, the real matters of common belief are never thus palpably false, but have always something deeper than a superficial show; (2) From the first truths or *principia*, upon which scientific demonstration proceeds; (3) From the paralogisms, or fallacious assumptions (*ψευδογραφήματα*), liable to occur in each particular science.

Now what Aristotle here designates and defines as "matters of common opinion and belief" (*τὰ ἐνδοξα*) includes all that is usually meant, and properly meant, by Common Sense—what is believed by all men or by most men. But Aristotle does not claim any warrant or authority for the truth of these beliefs, on the

* Aristot. *Rhetor.* I. i. p. 1354, a. 1. Compare *Sophist. Elench.* xi. p. 172, a. 30.

ground of their being deliverances of Common Sense, and accepted (by all or by the majority) always as indisputable, often as self-evident. On the contrary, he ranks them as mere probabilities, some in a greater, some in a less degree; as matters whereon something may be said both *pro* and *con*, and whereon the full force of argument on both sides ought to be brought out, notwithstanding the supposed self-evidence in the minds of unscientific believers. Though, however, he encourages this dialectical discussion on both sides as useful and instructive, he never affirms that it can by itself lead to certain scientific conclusions, or to anything more than strong probability on a balance of the countervailing considerations. The language that he uses in speaking of these deliverances of Common Sense is measured and just. After distinguishing the real Common Opinion from the fallacious simulations of Common Opinion set up (according to him) by some pretenders, he declares that in all cases of Common Opinion there is always something more than a mere superficial appearance of truth. In other words, wherever any opinion is really held by a large public, it always deserves the scrutiny of the philosopher to ascertain how far it is erroneous, and, if it be erroneous, by what appearances of reason it has been enabled so far to prevail.

Again, at the beginning of the *Topica* (in which he gives both a theory and precepts of dialectical debate), Aristotle specifies four different ends to be served by that treatise. It will be useful (he says)—

1. For our own practice in the work of debate. If we acquire a method and system, we shall find it easier to conduct a debate on any new subject, whenever such debate may arise.

2. For our daily intercourse with the ordinary public. When we have made for ourselves a full collection of the opinions held by the many, we shall carry on our conversation with them out of their own doctrines, and not out of doctrines foreign to their minds; we shall thus be able to bring them round on any matter where we think them in error.

3. For the sciences belonging to philosophy. By discussing the difficulties on both sides, we shall more easily discriminate truth and falsehood in each separate scientific question.

4. For the first and highest among the *principia* of each particular science. These, since they are the first and highest of all, cannot be discussed out of *principia* special and peculiar to any separate science; but must be discussed through the opinions commonly received on the subject-matter of each. This is the main province of Dialectic; which, being essentially testing and critical, is con-

nected by some threads with the *principia* of all the various scientific researches.

We see thus that Aristotle's language about Common Opinion or Common Sense is very guarded; that, instead of citing it as an authority, he carefully discriminates it from Science, and places it decidedly on a level lower than Science, in respect of evidence; yet that he recognizes it as essential to be studied by the scientific man, with full confrontation of all the reasonings both for and against every opinion; not merely because such study will enable the scientific man to study and converse intelligibly and efficaciously with the vulgar, but also because it will sharpen his discernment for the truths of his own science, and because it furnishes the only materials for testing and limiting the first *principia* of that science.

II. We will next advert to the judgment of Aristotle respecting these *principia* of science: how he supposes them to be acquired and verified. He discriminates various special sciences (geometry, arithmetic, astronomy, &c.), each of which has its own appropriate matter, and special *principia* from which it takes its departure. But there are also certain *principia* common to them all; and these he considers to fall under the cognizance of one grand comprehensive science, which includes all the rest; First, Philosophy or Ontology—the science of Ens in its most general sense, *quatenus* Ens; while each of the separate sciences confines itself to one exclusive department of Ens. The geometer does not debate nor prove the first *principia* of his own science; neither those that it has in common with other sciences, nor those peculiar to itself. He takes these for granted, and demonstrates the consequences that logically follow from them. It belongs to the First Philosopher to discuss the *principia* of all. Accordingly, the province of the First Philosopher is all-comprehensive, co-extensive with all the sciences. So also is the province of the Dialectician alike all-comprehensive. Thus far the two agree; but they differ as to method and purpose. The Dialectician seeks to enforce, confront, and value all the different reasons *pro* and *con*, consistent and inconsistent; the First Philosopher performs this too, or supposes it to be performed by others, but proceeds farther: namely, to determine certain Axioms that may be trusted as sure grounds (along with certain other *principia*) for demonstrative conclusions in science.

Aristotle describes in his *Analytica* the process of Demonstration, and the conditions required to render it valid. But what is the point of departure for this process? Aristotle declares that there cannot be a regress without end, demonstrating one conclusion from certain premisses, then demonstrating those premisses from others,

and so on. You must arrive ultimately at some premisses that are themselves undemonstrable, but that may be trusted as ground from whence to start in demonstrating conclusions. All demonstration is carried on through a middle term, which links together the two terms of the conclusion, though itself does not appear in the conclusion. Those undemonstrable propositions, from which demonstration begins, must be known without a middle term, that is, *immediately* known; they must be known in themselves, that is, not through any other propositions; they must be better known than the conclusions derived from them; they must be propositions first and most knowable. But these two last epithets (Aristotle often repeats) have two meanings: first and most knowable *by nature* or *absolutely*, are the most universal propositions; first and most knowable *to us*, are those propositions declaring the particular facts of sense. These two meanings designate truths correlative to each other, but at opposite ends of the intellectual line of march.

Of these undemonstrable *principia*, indispensable as the grounds of all Demonstration, some are peculiar to each separate science, others are common to several or to all sciences. These common principles were called Axioms, in mathematics, even in the time of Aristotle. Sometimes, indeed, he designates them as Axioms, without any special reference to mathematics; though he also uses the same name to denote other propositions, not of the like fundamental character. Now, how do we come to know these undemonstrable Axioms and other immediate propositions or *principia*, since we do not know them by demonstration? This is the second question to be answered, in appreciating Aristotle's views about the Philosophy of Common Sense.

He is very explicit in his way of answering this question. He pronounces it absurd to suppose that these immediate *principia* are innate or congenital,—in other words, that we possess them from the beginning, and yet that we remain for a long time without any consciousness of possessing them; seeing that they are the most accurate of all our cognitions. What we possess at the beginning (Aristotle says) is only a mental power of inferior accuracy and dignity. We, as well as all other animals, begin with a congenital discriminative power called sensible perception. With many animals, the data of perception are transient, and soon disappear altogether, so that the cognition of such animals consists in nothing but successive acts of sensible perception. With us, on the contrary, as with some other animals, the data of perception are preserved by memory; accordingly our cognitions include both perceptions and remembrances. Furthermore, we are distinguished even from the

better animals by this difference—that with us, but not with them, a rational order of thought grows out of such data of perception, when multiplied and long preserved. And thus out of perception grows memory; out of memory of the same matter often repeated grows experience, since many remembrances of the same thing constitute one numerical experience. Out of such experience, a farther consequence arises, that what is one and the same in all the particulars, (the Universal or the One alongside of the Many), becomes fixed or rests steadily within the mind. Herein lies the *principium* of Art, in reference to Agenda or Facienda—of Science, in reference to Entia.

Thus these cognitive *principia* are not original and determinate possessions of the mind, nor do they spring from any other mental possessions of a higher cognitive order, but simply from data of sensible perception; which data are like runaway soldiers in a panic, first one stops his flight and halts, then a second follows the example, afterwards a third and fourth, until at length an orderly array is obtained. Our minds are so constituted as to render this possible. If a single individual impression is thus detained, it will presently acquire the character of a Universal in the mind; for, though we perceive the particular, our perception is of the Universal (*i.e.*, when we perceive Kallias, our perception is of man generally, not of the man Kallias). Again the fixture of these lowest Universals in the mind will bring in those of the next highest order; until at length the Summa Genera and the absolute Universals acquire a steady establishment therein. Thus, from this or that particular animal, we shall rise as high as Animal universally; and so on from Animal upwards.

We thus see clearly (Aristotle says) that only by Induction can we come to know the first *principia* of Demonstration; for it is by this process that sensible perception engraves the Universal on our minds.* We begin by the *notiora nobis* (Particulars), and ascend to the *notiora naturâ* or *simpliciter* (Universals). Some among

* Aristot. Anal. Post. II. p. 100, b. 3: δῆλον δὲ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀναγκαῖον· καὶ γὰρ καὶ αἰσθησις οὕτω τὸ καθόλου ἐμποιεῖ; also ibid. I. xviii., p. 81, b. 3, upon which passage Waitz, in his note, explains as follows (p. 347):—"Sententia nostri loci hæc est. Universales propositiones omnes inductione comparantur, quum etiam in iis, quæ a sensibus maxime aliena videntur, et quæ, ut mathematica (τὰ ἐξ ἀφαιρέ-
σεως), cogitatione separantur a materia quacum conjuncta sunt, inductione probentur ea quæ de genere (*e.g.*, de linea vel de corpore mathematico), ad quod demonstratio pertineat, prædicentur καθ' αὐτὰ et cum ejus natura conjuncta sint. Inductio autem iis nititur quæ sensibus percipiuntur: nam res singulares sentiuntur, scientia vero rerum singularium non datur sine inductione, non datur inductio sine sensu."

our mental habits that are conversant with truth, are also capable of falsehood (such as Opinion and Reasoning): others are not so capable, but embrace uniformly truth and nothing but truth; such are Science and Intellect (Noûs). Intellect is the only source more accurate than Science. Now the *principia* of Demonstration are more accurate than the demonstrations themselves, yet they cannot (as we have already observed) be the objects of Science. They must therefore be the object of what is more accurate than Science, namely, of Intellect. Intellect and the objects of Intellect will thus be the *principia* of Science and of the objects of Science. But these principles are not intuitive data or revelations. They are acquisitions gradually made; and there is a regular road whereby we travel up to them, quite distinct from the road whereby we travel down from them to scientific conclusions.

The chapter just indicated in the *Analytica Posteriora*, attesting the growth of those universals that form the *principia* of demonstration out of the particulars of sense, may be illustrated by a similar statement in the First Book of the *Metaphysica*. Here, after stating that sensible perception is common to all animals, Aristotle distinguishes the lowest among animals, who have this alone; then, a class next above them, who have it along with phantasy and memory, and some of whom are intelligent (like bees), yet still cannot learn, from being destitute of hearing; farther another class, one stage higher, who hear, and therefore can be taught something, yet arrive only at a scanty sum of experience; lastly, still higher, the class men, who possess a large stock of phantasy, memory, and experience, fructifying into science and art.* Experience (Aristotle says) is of particular facts; Art and Science are of Universals. Art is attained, when out of many conceptions of experience there arises one universal persuasion respecting phenomena similar to each other. We may know that Kallias, sick of a certain disease—that Sokrates, likewise sick of it—that A, B, C, and other individuals besides, have been cured by a given remedy; but this persuasion respecting ever so many individual cases, is mere matter of experience. When, however, we proceed to generalize these cases, and then affirm that the remedy cures all persons suffering under the same disease,

* Aristot. *Metaphys.* A. i. p. 980, a. 26, seq.: φρόνιμα μὲν ἀνευ τοῦ μαθεῖν, οὐδὲν δὲ δύναται τῶν ψόφων ἀκούειν, οἷον μέλιττα, καὶ εἴ τι τοιοῦτον ἄλλο γένος ζῶων ἔστιν.

We remark here the line that he draws between the intelligence of bees—depend-

ing altogether upon sense, memory, and experience—and the higher intelligence which is superadded by the use of language; when it becomes possible to teach and learn, and when general conceptions can be brought into view through appropriate names.

circumscribed by specific marks—fever or biliousness—this is Art or Science. One man may know the particular cases empirically, without having generalized them into a doctrine; another may have learnt the general doctrine, with little or no knowledge of the particular cases. Of these two, the last is the wiser and more philosophical man; but the first may be the more effective and successful as a practitioner.

In the passage above noticed, Aristotle draws the line of intellectual distinction between man and the lower animals. If he had considered that it was the prerogative of man to possess a stock of intuitive general truths, ready-made, and independent of experience, this was the occasion for saying so. He says the exact contrary. No modern psychologist could proclaim more fully than Aristotle here does the derivation of all general concepts and general propositions from the phenomena of sense, through the successive stages of memory, association, comparison, abstraction. No one could give a more explicit acknowledgment of Induction from particulars of sense, as the process whereby we reach ultimately those propositions of the highest universality, as well as of the highest certainty; from whence, by legitimate deductive syllogism, we descend to demonstrate various conclusions. There is nothing in Aristotle about generalities originally inherent in the mind, connate although dormant at first and unknown, until they are evoked or elicited by the senses; nothing to countenance that nice distinction eulogized so emphatically by Hamilton (p. 772, a. note): “*Cognitio nostra omnis à mente primam originem, à sensibus exordium habet primum.*” In Aristotle’s view, the senses furnish both *originem* and *exordium*: the successive stages of mental procedure, whereby we rise from sense to universal propositions, are multiplied and gradual, without any break. He even goes so far as to say that we have *sensible perception* of the Universal. His language undoubtedly calls for much criticism here. We shall only say that it discountenances altogether the doctrine that represents the Mind or Intellect as an original source of First or Universal Truths peculiar to itself. That opinion is mentioned by Aristotle, but mentioned only to be rejected. He denies that the mind possesses any such ready-made stores, latent until elicited into consciousness. Moreover, it is remarkable that the ground whereon he denies it is much the same as that whereon the advocates of intuitions affirm it, viz., the supreme accuracy of these axioms. Aristotle cannot believe that the mind includes cognitions of such value, without being conscious thereof. Nor will he grant that the mind possesses any

native and inherent power of originating these inestimable *principia*.^{*} He declares that they are generated in the mind only by the slow process of induction, as above described; beginning from the perceptive power (common to man with animals), together with that first stage of the intelligence (judging or discriminative) which he combines or identifies with perception, considering it to be alike congenital. From this humble basis men can rise to the highest grades of cognition, though animals cannot. We even become competent (Aristotle says) to have sensible perception of the Universal; in the man Kallias, we see Man; in the ox feeding near us, we see Animal.

It must be remembered that, when Aristotle, in this analysis of cognition, speaks of Induction, he means induction completely and accurately performed; just as, when he talks of Demonstration, he intends a good and legitimate demonstration; and just as (to use his own illustration in the *Nikomachean Ethica*), when he reasons upon a harper, or other professional artist, he always tacitly implies a good and accomplished artist. Induction thus understood, and Demonstration, he considers to be the two processes for obtaining scientific faith or conviction; both of them being alike cogent and necessary, but Induction even more so than Demonstration; because, if the *principia* furnished by the former were not necessary, neither could the conclusions deduced from them by the latter be necessary. Induction may thus stand alone without Demonstration, but Demonstration pre-supposes and postulates Induction. Accordingly, when Aristotle proceeds to specify those functions of mind wherewith the inductive *principia* and the demonstrated conclusions correlate, he refers both of them to functions wherein (according to him) the mind is unerring and infallible—Intellect (*Noûs*) and Science. But, between these two he ranks Intellect as the higher, and he refers the inductive *principia* to Intellect. He does not mean that Intellect (*Noûs*) generates or produces these principles. On the contrary, he distinctly negatives such a supposition, and declares that no generative force of this high order resides in the Intellect;

* Aristot. Anal. Post. II. xix. p. 99, b. 26: *εἰ μὲν δὴ ἔχομεν αὐτάς, ἀποπον· συμβαίνει γὰρ ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως λαμβάνειν. — φανερόν τοίνυν ὅτι οὐτ' ἔχειν οὐδὲν τε, οὐτ' ἀγνοοῦσι καὶ μηδεμίαν ἔχουσιν ἔξιν ἐγγίνεσθαι. ἀνάγκη ἄρα ἔχειν μὲν τινα δύναμιν, μὴ τοιαύτην δ' ἔχειν ἢ ἔσται τούτων τιμιωτέρα κατ' ἀκρίβειαν.* See *Metaphys. A. ix. p. 993, a. 1.*

Some modern psychologists, who admit that general propositions of a lower degree

of universality are raised from induction and sense, contend that propositions of the highest universality are not so raised, but are the intuitive offspring of the intellect. Aristotle does not countenance such a doctrine: he says (*Metaphys. A. ii. p. 982, a. 25*) that these truths furthest removed from sense are the most difficult to know of all. If they were intuitions they would be the common possession of the race.

while he tells us, with equal distinctness, that they are generated from a lower source—sensible perception, and through the gradual upward march of the inductive process. To say that they originate from Sense through Induction, and nevertheless to refer them to Intellect (*Noûs*) as their subjective correlate,—are not positions inconsistent with each other, in the view of Aristotle. He expressly distinguishes the two points, as requiring to be separately dealt with. By referring the *principia* to Intellect (*Noûs*), he does not intend to indicate their generating source, but their evidentiary value and dignity when generated and matured. They possess, in his view, the maximum of dignity, certainty, cogency, and necessity, because it is from them that even Demonstration derives the necessity of its conclusions; accordingly (pursuant to the inclination of the ancient philosophers for presuming affinity and commensurate dignity between the *cognitum* and the *cognoscens*), they belong as objective correlates to the most unerring cognitive function—the Intellect (*Noûs*). It is the Intellect that grasps these principles, and applies them to their legitimate purpose of scientific demonstration; hence Aristotle calls Intellect not only the *principium* of Science, but the *principium principii*.

In the *Analytica*, from which we have hitherto cited, Aristotle explains the structure of the Syllogism and the process of Demonstration. He has in view mainly (though not exclusively) the more exact sciences, arithmetic, geometry, astronomy, &c. But he expressly tells us that all departments of inquiry are not capable of this exactness; that some come nearer to it than others; that we must be careful to require no more exactness from each than the subject admits; and that the method adopted by us must be such as will attain the admissible maximum of exactness. Now each subject has some *principia*, and among them definitions, peculiar to itself; though there are also some *principia* common to all, and essential to the march of each. In some departments of study (Aristotle says) we get our view of *principia* or first principles by induction; in others, by sensible perception; in others again, by habitual action in a certain way; and by various other processes also. In each, it is important to look for first principles in the way naturally appropriate to the matter before us; for this is more than half of the whole work; upon right first principles will mainly depend the value of our conclusions. For what concerns Ethics, Aristotle tells us that the first principles are acquired through a course of well-directed habitual action; and that they will be acquired easily, as well as certainly, if such a course be enforced on youth from the beginning. In the beginning of the

Physica, he starts from that antithesis, so often found in his writings, between what is more knowable to us and what is more knowable absolutely or by nature. The natural march of knowledge is to ascend from the first of these two termini (particulars of sense) upward to the second or opposite,* and then to descend downward by demonstration or deduction. The fact of motion he proves (against Melissus and Parmenides) by an express appeal to induction, as sufficient and conclusive evidence. In physical science (he says) the final appeal must be to the things and facts perceived by sense. In the treatise *De Cælo* he lays it down that the *principia* must be homogeneous with the matters they belong to: the *principia* of perceivable matters must be themselves perceivable; those of eternal matters must be eternal; those of perishable matters, perishable.

The treatises composing the *Organon* stand apart among Aristotle's works. In them he undertakes (for the first time in the history of mankind) the systematic study of significant propositions enunciative of truth and falsehood. He analyses their constituent elements; he specifies the conditions determining the consistency or inconsistency of such propositions one with another; he teaches to arrange the propositions in such ways as to detect and dismiss the inconsistent, keeping our hold of the consistent. Here the signification of terms and propositions is never out of sight: the facts and realities of nature are regarded as so signified. Now all language becomes significant only through the convention of mankind, according to Aristotle's express declaration: it is used by speakers to communicate what they mean to hearers that understand them. We see thus that in these treatises the subjective point of view is brought into the foreground—the enunciation of what we see, remember, believe, disbelieve, doubt, anticipate, &c. It is not meant that the objective point of view is eliminated, but that it is taken in implication with, and in dependence upon, the subjective. Neither the one nor the other is dropped or hidden. It is under this double and conjoint point of view that Aristotle, in the *Organon*, presents to us, not only the processes of demonstration and confutation, but also the fundamental *principia* or axioms thereof; which axioms in the *Analytica Posteriora* (as we have already seen) he expressly declares to originate from the data of sense, and to be raised and generalized by induction.

Such is the way that Aristotle represents the fundamental principles of syllogistic Demonstration, when he deals with them as

* See also Aristot. *Metaphys.* Z. iv. p. 1029, b. 1-14.

portions of Logic. But we also find him dealing with them as portions of Ontology or First Philosophy (this being his manner of characterizing his own treatise, now commonly known as the *Metaphysica*). To that science he decides, after some preliminary debate, that the task of formulating and defending the axioms belongs, because the application of these axioms is quite universal, for all grades and varieties of *Entia*. Ontology treats of *Ens* in its largest sense, with all its properties *quatenus Ens*, including *Unum*, *Multa*, *Idem*, *Diversum*, *Posterius*, *Prius*, *Genus*, *Species*, *Totum*, *Partes*, &c. Now Ontology is with Aristotle a purely objective science; that is, a science wherein the subjective is dropt out of sight and no account taken of it, or wherein (to state the same fact in the language of relativity) the believing and reasoning subject is supposed constant. Ontology is the most comprehensive among all the objective sciences. Each of these sciences singles out a certain portion of it for special study. In treating the logical axioms as portions of Ontology, Aristotle undertakes to show their objective value; and this purpose, while it carries him away from the point of view that we remarked as prevailing in the *Organon*, at the same time brings him into conflict with various theories, all of them in his time more or less current. Several philosophers—Herakleitus, Anaxagoras, Demokritus, Protagoras—had propounded theories which Aristotle here impugns. We do not mean that these philosophers expressly denied his fundamental axioms (which they probably never distinctly stated to themselves, and which Aristotle was the first to formulate), but their theories were to a certain extent inconsistent with these axioms, and were regarded by Aristotle as wholly inconsistent.

The two Axioms announced in the *Metaphysica*, and vindicated by Aristotle, are—

1. The Maxim of Contradiction: It is impossible for the same thing to be and not to be; It is impossible for the same to belong and not to belong to the same, at the same time and in the same sense. This is the statement of the Maxim as a formula of Ontology. Announced as a formula of Logic, it would stand thus: The same proposition cannot be both true and false at the same time; You cannot both believe and disbelieve the same proposition at the same time; You cannot believe, at the same time, propositions contrary or contradictory. These last-mentioned formulæ are the logical ways of stating the axiom. They present it in reference to the believing or disbelieving (affirming or denying) subject, distinctly brought to view along with the matter believed; not exclusively in reference to the matter believed, to the omission of the believer.

2. The Maxim of Excluded Middle: A given attribute either does belong, or does not belong to a subject (i.e., provided that it has any relation to the subject at all)—there is no medium, no real condition intermediate between the two. This is the ontological formula; and it will stand thus, when translated into Logic: Between a proposition and its contradictory opposite there is no tenable halting ground; If you disbelieve the one, you must pass at once to the belief of the other—you cannot at the same time disbelieve the other.

These two maxims thus teach—the first, that we cannot at the same time *believe* both a proposition and its contradictory opposite; the second, that we cannot at the same time *disbelieve* them both.*

Now, Herakleitus, in his theory (a theory propounded much before the time of Protagoras and the persons called Sophists), denied all permanence or durability in nature, and recognized nothing except perpetual movement and change. He denied both durable substances and durable attributes; he considered nothing to be lasting except the universal law or principle of change—the ever-renewed junction or co-existence of contraries and the perpetual transition of one contrary into the other. This view of the facts of nature was adopted by several other physical philosophers besides.^b Indeed it lay at the bottom of Plato's new coinage—Rational Types or Forms, at once universal and real. The Maxim of Contradiction is intended by Aristotle to controvert Herakleitus, and to uphold durable substances with definite attributes.

Again, the theory of Anaxagoras denied all simple bodies (excepting *Noûs*) and all definite attributes. He held that everything was mingled with everything else, though there might be some one or other predominant constituent. In all the changes visible throughout nature, there was no generation of anything new, but only the coming into prominence of some constituent that had before been comparatively latent. According to this theory, you could neither wholly affirm, nor wholly deny, any attribute of its subject. Both affirmation and denial were untrue: the real relation between the two was something half-way between affirmation and denial. The Maxim of Excluded Middle is maintained by Aristotle as a doctrine in opposition to this theory of Anaxagoras.^c

* We have here discussed these two maxims chiefly in reference to Aristotle's manner of presenting them, and to the conceptions of his predecessors and contemporaries. An excellent view of the Maxims themselves, in their true meaning

and value, will be found in Mr. John Stuart Mill's *Examination of the Philosophy of Sir Wm. Hamilton*, ch. xxi. pp. 406-421.

^b See 'Plato and other Comp. of Sokr.' I. i. pp. 28-38.

^c Ibid. pp. 49-57.

Both the two above-mentioned theories are objective. A third, that of Protagoras—"Homo Mensura"—brings forward prominently the subjective, and is quite distinct from either. Aristotle does indeed treat the Protagorean theory as substantially identical with that of Herakleitus, and as standing or falling therewith. This seems a mistake: the theory of Protagoras is as much opposed to Herakleitus as to Aristotle.

We have now to see how Aristotle sustains these two Axioms (which he calls "the firmest of all truths and the most assuredly known") against theories opposed to them. In the first place, he repeats here what he had declared in the *Analytica Posteriora*—that they cannot be directly demonstrated, though they are themselves the *principia* of all demonstration. Some persons indeed thought that these Axioms were demonstrable; but this is an error, proceeding (he says) from complete ignorance of analytical theory. How, then, are these Axioms to be proved against Herakleitus? Aristotle had told us in the *Analytica* that axioms were derived from particulars of sense by Induction, and apprehended or approved by the *Noûs*. He does not repeat that observation here; but he intimates that there is only one process available for defending them, and that process amounts to an appeal to Induction. You can give no ontological reason in support of the Axioms, except what will be condemned as a *petitio principii*; you must take them in their logical aspect, as enunciated in significant propositions. You must require the Herakleitean adversary to answer some question affirmatively, in terms significant both to himself and to others, and in a proposition declaring his belief on the point. If he will not do this, you can hold no discussion with him: he might as well be deaf and dumb: he is no better than a plant (to use Aristotle's own comparison). If he does it, he has bound himself to something determinate: first, the signification of the terms is a fact, excluding what is contrary or contradictory; next, in declaring his belief, he at the same time declares that he does not believe in the contrary or contradictory, and is so understood by the hearers. We may grant what his theory affirms—that the subject of a proposition is continually under some change or movement; yet the identity designated by its name is still maintained,* and many true predications respecting it remain true in spite of its partial change. The argument in defence of the Maxim of Contradiction is, that it is a postulate implied in all the particular statements as to matters

* This argument is given by Aristotle, *Metaph.* Γ. v. p. 1010, a. 7-25, contrasting change *κατὰ τὸ ποσόν* and change *κατὰ τὸ τοιόν*.

of daily experience, that a man understands and acts upon when heard from his neighbours; a postulate such that, if you deny it, no speech is either significant or trustworthy to inform and guide those who hear it. If the speaker both affirms and denies the same fact at once, no information is conveyed, nor can the hearer act upon the words. Thus, in the *Acharnenses* of Aristophanes, Dikæopolis knocks at the door of Euripides, and inquires whether the poet is within; Kephisophon, the attendant, answers—"Euripides is within and not within." This answer is unintelligible; Dikæopolis cannot act upon it; until Kephisophon explains that "not within" is intended metaphorically. Then, again, all the actions in detail of a man's life are founded upon his own belief of some facts and disbelief of other facts: he goes to Megara, believing that the person whom he desires to see is at Megara, and at the same time disbelieving the contrary: he acts upon his belief both as to what is good and what is not good, in the way of pursuit and avoidance. You may cite innumerable examples both of speech and action in the detail of life, which the Herakleitean must go through like other persons; and when, if he proceeded upon his own theory, he could neither give nor receive information by speech, nor ground any action upon the beliefs which he declares to co-exist in his own mind. Accordingly, the Herakleitean Kratylus (so Aristotle says) renounced the use of affirmative speech, and simply pointed with his finger.*

The Maxim of Contradiction is thus seen to be only the general expression of a postulate implied in all such particular speeches as communicate real information. It is proved by a very copious and diversified Induction, from matters of experience familiar to every individual person. It is not less true in regard to propositions affirming changes, motions, or events, than in regard to those declaring durable states or attributes.

In the long pleading of Aristotle on behalf of the Maxim of Contradiction against the Herakleiteans, the portion of it that appeals to Induction is the really forcible portion; conforming as it does to what he had laid down in the *Analytica Posteriora* about the inductive origin of the *principia* of demonstration. He employs, however, besides, several other dialectical arguments built more or less upon theories of his own, and therefore not likely to weigh much with an Herakleitean theorist; who—arguing, as he did argue, that (because neither subject nor predicate was ever unchanged or stable for two moments together) no true proposition could be

* Aristot. *Metaph.* Γ. v. p. 1010, a. 12. Compare Plato, *Theætēt.* pp. 179-180, about the aversion of the Herakleiteans for clear issues and propositions.

framed but was at the same time false, and that contraries were in perpetual co-existence—could not by any general reasoning be involved in greater contradiction and inconsistency than he at once openly proclaimed.* It can only be shown that such a doctrine cannot be reconciled with the necessities of daily speech, as practised by himself, as well as by others. We read, indeed, one ingenious argument whereby Aristotle adopts this belief in the co-existence of contraries, but explains it in a manner of his own, through his much employed distinction between potential and actual existence. Two contraries cannot co-exist (he says) in actuality; but they both may and do co-exist in different senses—one or both of them being potential. This, however, is a theory totally different from that of Herakleitus; coincident only in words and in seeming. It does indeed eliminate the contradiction; but that very contradiction formed the characteristic feature and keystone of the Herakleitean theory. The case against this last theory is, that it is at variance with psychological facts, by incorrectly assuming the co-existence of contradictory beliefs in the mind; and that it conflicts both with postulates implied in the daily colloquy of detail between man and man, and with the volitional preferences that determine individual action. All of these are founded on a belief in the regular sequence of our sensations, and in the at least temporary durability of combined potential aggregates of sensations, which we enunciate in the language of definite attributes belonging to definite substances. This language, the common medium of communication among non-theorizing men, is accepted as a basis, and is generalized and regularized, in the logical theories of Aristotle.

The doctrine here mentioned is vindicated by Aristotle, not only against Herakleitus, by asserting the Maxim of Contradiction, but also against Anaxagoras, by asserting the Maxim of Excluded Middle. Here we have the second *principium* of Demonstration, which, if it required to be defended at all, can only be defended (like the first) by a process of Induction. Aristotle adduces several arguments in support of it, some of which involve an appeal to Induction, though not broadly or openly avowed; but others of them assume what adversaries, and Anaxagoras especially, were not likely to grant. We must remember that both Anaxagoras and

* This is stated by Aristotle himself, *Metaph. Γ. vi. p. 1011, a. 15*: οἱ δ' ἐν τῷ λόγῳ τὴν βίαν μόνον ζητοῦντες ἀδύνατον ζητοῦσιν ἐναντία γὰρ εἰπεῖν ἀξιοῦσιν, εὐθὺς ἐναντία λέγοντες. He here, indeed, applies this observation immediately to the Protagoreans, against whom it does

not tell, instead of the Herakleiteans, against whom it does tell. The whole of the reasoning in this part of the *Metaphysica* is directed indiscriminately, and in the same words, against Protagoreans and Herakleiteans.

Herakleitus propounded their theories as portions of Physical Philosophy or of Ontology; and that in their time no such logical principles and distinctions as those that Aristotle lays down in the *Organon*, had yet been made known or pressed upon their attention. Now, Aristotle, while professing to defend these Axioms as data of Ontology, forgets that they deal with the logical aspect of Ontology, as formulated in methodical propositions. His view of the Axioms cannot be properly appreciated without a classification of propositions, such as neither Herakleitus nor Anaxagoras found existing or originated for themselves. Aristotle has taught us what Herakleitus and Anaxagoras had not been taught—to distinguish separate propositions as universal, particular and singular; and to distinguish pairs of propositions as contrary, sub-contrary, and contradictory. To take the simplest case, that of a singular proposition, in regard to which the distinction between contrary and contradictory has no application,—such as the answer (cited above) of Kephisophon about Euripides. Here Aristotle would justly contend that the two propositions—Euripides is within, Euripides is not within—could not be either both of them true, or both of them false; that is, that we could neither believe both, nor disbelieve both. If Kephisophon had answered, Euripides is neither within nor not within, Dikæopolis would have found himself as much at a loss with the two negatives as he was with the two affirmatives. In regard to singular propositions, neither the doctrine of Herakleitus (to believe both affirmation and negation) nor that of Anaxagoras (to disbelieve both) is admissible. But, when in place of singular propositions we take either universal or particular propositions, the rule to follow is no longer so simple and peremptory. The universal affirmative and the universal negative are *contrary*; the particular affirmative and the particular negative are *sub-contrary*; the universal affirmative and the particular negative, or the universal negative and the particular affirmative, are *contradictory*. It is now noted in all manuals of Logic, that of two contrary propositions, both cannot be true, but both may be false; that of two sub-contraries, both may be true, but both cannot be false; and that of two contradictories, one must be true and the other false.

III.

METAPHYSICA.

4 6 7

[THE following Abstract—when not translation—of six books (Γ, Ε, Ζ, Η, Θ, Λ) out of the fourteen included under the title ‘Metaphysica,’ may be said to cover the whole of Aristotle’s dogmatic exposition of First Philosophy. According to the view of Brandis, now in its main features generally accepted, the exposition continued through Books Γ, Ε, Ζ, Η, reaches back to Books Α and Β, and comes to an end with Book Θ. Still it is only with Book Γ that the properly didactic treatment begins, Book Α being a historical review of previous opinion, and Book Β a mere collection of *ἀπορίαι* subjected to a preliminary dialectical handling; while, at the other end, Book Λ, though it has no direct connection with Book Θ, is, especially in its latter part, of undeniable importance for Aristotle’s metaphysical doctrine.

The remaining books are known as α, Δ, Ι, Κ, Μ, Ν. The short Book α is entirely unconnected with any of the others, and most probably is not the work of Aristotle. Book Δ (*περὶ τῶν ποσάχως λεγόμενων*)—a vocabulary of philosophical terms—is Aristotelian beyond question, being referred to occasionally in the chief books; but it lies quite apart from the exposition proper. Book Ι—dealing with Unity and Opposites—though it also has no place in the actual line of treatment, is truly ontological in character, and probably was intended to fall within some larger scheme of metaphysical doctrine; the like, as far as can be judged, being true of Books Μ and Ν, containing together a criticism of Pythagorean and Platonic theories. Finally, Book Κ, consisting in part of an epitomized excerpt from the *Physica*—hardly from the hand of Aristotle, gives otherwise only a sketch in outline of the argument of Books Β, Γ, Ε, and thus, although Aristotelian, is to be discounted.

The author nowhere states the principle upon which he selected the six books for a preliminary Abstract; but the actual selection, joined to various indications in the Abstract and marginal notes in his copies of the *Metaphysica*, leaves no doubt that he accepted the view of Brandis, more especially as set forth by Bonitz. On the whole question of the Canon of the *Metaphysica*, Bonitz’s Introduction to his Commentary may with advantage be consulted.]

BOOK Γ.

IN this First Philosophy, Aristotle analyses and illustrates the meaning of the *generalissima* of language—the most general and abstract words which language includes. All these are words in

common and frequent use; in the process of framing or putting together language, they have become permanently stamped and circulated as the result of many previous comparisons, gone through but afterwards forgotten, or perhaps gone through at first without any distinct consciousness. Men employ these words familiarly in ordinary speech, and are understood by others when they do so. For the most part, they employ the words correctly and consistently, in the affirmation of particular propositions relating to topics of daily life and experience. But this is not always or uniformly the case. Sometimes, more or less often, men fall into error and inconsistency in the employment of these familiar general terms. The First Philosophy takes up the generalities and established phrases in this condition; following back analytically the synthetical process which the framers of language have pursued without knowing or at least without recording it, and bringing under conscious attention the different meanings, more or fewer, in which these general words are used.

Philosophia Prima devotes itself, specially and in the first instance, to Ens *quatenus* Ens in all its bearings; being thus distinguished from mathematics and other particular sciences, each of which devotes itself to a separate branch of Ens (p. 1003, a. 25). It searches into the First Causes or Elements of Ens *per se*, not *per accidens* (a. 31). But Ens is a *commune*, not generically, but analogically; constituted by common relationship to one and the same terminus, as everything healthy is related to health. The Principle (*ἀρχή*) of all Entia is Essence (*οὐσία*); but some Entia are so called as being affections of Essence; others, as being a transition to Essence, or as destruction, privation, quality, efficient or generative cause, of Essence or its *analogia*; others, again, as being negations (*ἀποφάσεις*) thereof, whence, for example, we say that Non-Ens is Non-Ens (b. 6-10). There is one science of all these primary, secondary, tertiary, &c., Entia; just as there is one science of all things healthy, of the primary, the secondary, the tertiary, &c., *quatenus* healthy. But, in all such matters, that science bears in the first instance and specially (*κυρίως*) on the Primum Aliquid, from which all the secondary and other derivatives take their departure, and upon which they depend (b. 16). Accordingly, in the present case, since Essence is the Primum Aliquid, the province of First Philosophy is to investigate the causes and principles of Essences in all their varieties (b. 18-22). Now whatever varieties there are of Ens, the like varieties there are of Unum; for the two are always implicated together, though the words are not absolutely the same in meaning (b. 24-35).

Accordingly both Ens and Unum with all the varieties of each belong to Philosophia Prima; likewise Idem, Simile, &c., and the opposites thereof. All opposites may be traced in the last analysis to this foundation—the antithesis of Unum and Multa (p. 1004, a. 1). We must set forth and discriminate the different varieties—primary, secondary, tertiary, &c.—of Idem and Simile, and also of their opposites, Diversum and Dissimile; and we must show how they are derived from or related to Primum Idem, &c., just as we must do in the case of Ens and Unum. All this task belongs to First Philosophy (a. 20–30). Aristotle speaks of ὁ φιλόσοφος, as meaning the master of Philosophia Prima (b. 1; B. p. 997, a. 14).

If these investigations do not belong to the First Philosopher, to which among the other investigators can they belong? Who is to enquire whether Sokrates, and Sokrates sitting, is the same person? Whether Unum is opposite to Unum? In how many senses Opposite can be said? (p. 1004, b. 3). All these are affections *per se* of Unum *quatenus* Unum, and of Ens *quatenus* Ens, not *quatenus* numbers, or lines, or fire; that is, they are propria (*sensu logico*) of Ens and Unum (not included in the notion or definition, but deducible therefrom—"notæ consecutione notionis"), just as odd and even, proportionality, equality, excess and defect, are propria of numbers; and there are other propria of solids, whether moved or unmoved, heavy or light. It is these propria of Ens and Unum that Philosophia Prima undertakes to explain (b. 7–16), and which others fail to explain, because they take no account of οὐσία (b. 10), or of the fundamental Ens or Essentia to which these belong as propria.

These Propria of Ens are the οἰκεία—the special and peculiar matter or principles—of Philosophia Prima. That all of them belong in this special way to the First Philosopher, we may farther see by the fact that all of them are handled by the Dialectician and the Sophist, who assume an attitude counterfeiting the Philosopher. All three travel over the same ground, and deal with Ens, as a matter common to all (p. 1004, b. 20). But the Sophist differs from the Philosopher in his purpose, inasmuch as he aims only at giving the false appearance of wisdom without the reality, while the Dialectician differs from the Philosopher in his manner of handling (τῷ τρόπῳ τῆς δυνάμεως—b. 24). The Dialectician discusses the subject in a tentative way, from many different points of view, suggested by current opinions; the Philosopher marches by a straight and assured road from the appropriate principles of his science to certain conclusions and cognitions.

The same view of the scope and extent of Philosophia Prima may

be made out in another way. Almost all philosophers affirm that Entia are composed of contraries, and may be traced back to opposite principles—odd and even, hot and cold, limit and the unlimited, friendship and enmity, &c. Now these and all other contraries may be traced back to Unum and Multa: this we may assume (p. 1005, a. 1; according to Alexander Aph., it had been shown in the treatise De Bono—Schol. p. 648, a. 38, Br.).

Though it be true, therefore, that neither Ens nor Unum is a true genus, nor separable, but both of them aggregates of analogical derivatives, yet since all these derivatives have their root in one and the same *fundamentum*, the study of all of them belongs to one and the same science (p. 1005, a. 6–11). It is not the province of the geometer to examine what is The Opposite, The Perfect, Ens, Unum, Idem, Diversum, except in their application to his own problems. The general enquiry devolves upon the First Philosopher; who will investigate Ens *quatenus* Ens, together with the belongings or appendages (τὰ ὑπάρχοντα) of Ens *quatenus* Ens, including Prius, Posterius, Genus, Species, Totum, Pars, and such like (a. 11–18).

It falls to the First Philosopher also to investigate and explain what mathematicians call their Axioms: the mathematician ought not to do this himself, but to leave it to the First Philosopher. These Axioms are, in their highest generality, affirmations respecting Ens *quatenus* Ens, all of which belong to the First Philosopher; from whom the mathematician accepts them, and applies them as far as his own department requires (p. 1005, a. 20, seq.).

In First Philosophy, the firmest, best known, and most unquestionable of all principles is this: It is impossible for the same predicate at the same time and in the same sense to belong and not to belong to the same subject (p. 1005, b. 20). No one can at the same time believe that the same thing both is and is not; though Herakleitus professed to believe this, we must not suppose that he really did believe it (b. 25). No man can hold two contrary opinions at the same time (b. 31). This is by nature the first principle of all other axioms; to which principle all demonstrations are in the last resort brought back (b. 33: φύσει γὰρ ἀρχὴ καὶ τῶν ἄλλων ἀξιωμάτων αὐτῇ πάντων).

Aristotle then proceeds to explain and vindicate at length this ἀρχή—the Principle of Contradiction, which many at that time denied. This principle is at once the most knowable, and noway assumed as hypothesis (γνωριμωτάτην καὶ ἀνυπόθετον—p. 1005, b. 13). You cannot indeed demonstrate it to be true; the very attempt to demonstrate it would be unphilosophical:

demonstration of every thing, is an impossibility. You cannot march upwards in an infinite progression of demonstrations; you must arrive ultimately at some first truth which is not demonstrable; and, if any such first truth is to be recognized, no one can point out any truth better entitled to such privilege than the Principle of Contradiction (p. 1006, a. 11). But you can convict an opponent of self-contradiction (*ἀποδείξαι ἐλεγκτικῶς*, a. 12, 15), if he will only consent to affirm any proposition in significant terms—that is, in terms which he admits to be significant to himself and which he intends as such to others; in other words, if he will enter into dialogue with you, for without significant speech there can be no dialogue with him at all (a. 21).

When the opponent has shown his willingness to comply with the conditions of dialogue, by advancing a proposition in terms each having one definite signification, it is plain, by his own admission, that the proposition does not both signify and not signify the same. First, the copula of the proposition (*est*) does not signify what would be signified if the copula were *non est*; so that here is one case wherein the affirmative and the negative cannot be both of them true (p. 1006, a. 30; see Alex. Schol. and Bonitz's note). Next, let the subject of the proposition be *homo*; a term having only one single definite signification, or perhaps having two or three (or any definite number of) distinct significations, each definite. If the number of distinct significations be indefinite, the term is unfit for the purpose of dialogue (a. 30—b. 10). The term *homo* will signify one thing only; it will have one determinate essence and definition—say *animal bipes*: that is, if any thing be a man, the same will be *animal bipes*. But this last cannot be the essence and definition of *non-homo* also: *non-homo*, as a different name, must have different definition; *homo* and *non-homo* cannot be like *λόπιον* and *ἰμάτιον*, two terms having the same signification, essence and definition; for *homo* signifies one subject of constant and defined nature, not simply one among many predicates applicable by accident to this same constant subject; it signifies *μίαν φύσιν* and not *ἄλλην τινὰ φύσιν* (Scholia, p. 656, b. 21). Since each name indeed is applied by convention to what it denominates, the name *non-homo* may be applied elsewhere to that which we term *homo*; but this is a mere difference of naming; what bears the name *homo*, and what bears the name *non-homo*, must always be different, if *homo* is defined to signify one determinate nature (b. 22). The one single nature and essence defined as belonging to *homo*, cannot be the same as that belonging to *non-homo*. If any thing be *homo*, the same cannot

be *non-homo* : if any thing be *non-homo*, the same cannot be *homo* (b. 25-34). Whoever says that *homo* and *non-homo* have the same meaning, must say *à fortiori* that *homo*, *fortis*, *musicus*, *simus*, *pulcher*, &c., have the same meaning; for not one of these terms is so directly and emphatically opposite to *homo*, as *non-homo* is. He must therefore admit that the meaning, not merely of all these words but also, of a host besides is the same; in other words, that not merely Opposites are one, but all other things besides, under different names (ὅτι ἐν πάντα ἔσται καὶ οὐ μόνον τὰ ἀντικείμενα—p. 1007, a. 6).

This argument is directed against those who maintain that affirmative and negative are both true at once, but who still desire to keep up dialogue (Alex. Schol. p. 658, a. 26, Br. : τῷ τὴν τε ἀντίφασιν συναληθεύειν λέγοντι, καὶ σώζειν βουλομένῳ τὸ διαλέγεσθαι). No man who maintains this opinion, can keep his consistency in dialogue, if he will only give direct answers to the questions put to him, without annexing provisos and gratuitous additions to his answers. If you ask him, Whether it is true that Sokrates is *homo*? he ought to answer plainly Yes, or No. He ought not to answer: "Yes, but Sokrates is also *non-homo*," meaning that Sokrates is also the subject of many other accidental predicates—fair, flat-nosed, brave, accomplished, &c. He ought to answer simply to the question, whether the one essence or definition signified by the word man, belongs to Sokrates or not; he ought not to introduce the mention of these accidental predicates, to which the question did not refer. These accidental predicates are infinite in number; he cannot enumerate them all, and therefore he ought not to introduce the mention of any of them. Sokrates is *homo*, by the essence and definition of the word; he is *non-homo*, ten thousand times over, by accidental predicates; that is, he is fair, brave, musical, flat-nosed, &c., all of which are varieties of the general word *non-homo* (p. 1007, a. 7-19).

Those who contend that both members of the Antiphrasis are at once true disallow *Essentia* altogether, and the distinction between it and *Accidens* (p. 1007, a. 21). When we say that the word *homo* signifies a certain *Essentia*, we mean that its *Essentia* is nothing different from this, and that the being *homo* cannot be the same as the being *non-homo*, or the not being *homo*. Those against whom we are reasoning discard *Essentia* as distinguished from *Accidens*, and consider all predicates as *Accidentia*. *Albus* belongs to *homo* as an accident; but the essence of *albus* does not coincide with that of *homo*, and cannot be predicated of *homo* (a. 32). Upon the theory of these opponents, there would be no *Prima Essentia* to which all accidents

are attached; but this theory is untenable. Accidents cannot be attached one to another in an infinite ascending series (b. 1). You cannot proceed more than two steps upward: first one accident, then a second; the two being joined by belonging to one and the same subject. No accident can be the accident of another accident. Τὸ λευκόν may have the accident μουσικόν, or τὸ μουσικόν may have the accident λευκόν; each of these may be called indifferently the accident of the other; but the truth is, that λευκός and μουσικός are both of them accidents belonging to the common Essentia—*homo*. But, when we affirm *homo est musicus*, we implicate the accident with the Essentia to which it belongs; that Essentia is signified by the subject *homo*. There must thus be one word which has signification as Essentia; and, when such is the case, we have already shown that both members of the Antiphrasis cannot be predicated at once (b. 5–18).

(Alexander, in Scholia, p. 658, b. 40–p. 659, b. 14, Br., remarks on this argument of Aristotle: Those who held the opinion here controverted by Aristotle—τὴν ἀντίφασιν συναληθεύειν—had in their minds accidental propositions, in regard to which they were right, except that both members of the Antiphrasis cannot be true at the same time. *Sokrates est musicus*—*Sokrates non est musicus*: these two propositions are both true, in the sense that one or other of them is true only *potentially*, and that both cannot be actually true at the same time. One of them is true, and the other false, at the present moment; but that which is now false has been true in the past, and may become true in the future. Aristotle does not controvert this theory so far as regards accidental propositions; but he maintains that it is untenable about essential propositions, and that the theorists overlooked this distinction.)

Moreover, if you say that both members of the Antiphrasis are alike true respecting every predicate of a given subject, you must admit that all things are one (p. 1007, b. 20). The same thing will be at once a wall, a trireme, a man. Respecting every subject, you may always either affirm or deny any given predicate; but, according to this theory, whenever it is true to affirm, it is always equally true to deny. If you can say truly, *Homo non est triremis*, you may say with equal truth, according to the theory before us, *Homo est triremis*. And, of course, *Homo non est triremis* may be said truly; since (still according to this theory) the much more special negative, *Homo non est homo*, may be said truly (b. 32).

Again, if this theory be admitted, the doctrine that every predicate may be either affirmed or denied of any given subject, will

no longer hold true. For, if it be true to say of Sokrates both *Est homo* and *Est non-homo*: it must also be true to say of him both *Non est homo* and *Non est non-homo*. If both affirmative and negative may be alike affirmed, both may be alike denied (p. 1008, a. 2-7). If both members of the Antiphrasis are alike true, both must be alike false (Alex. Schol. p. 663, a. 14-34).

Again, the theory that both members of the Antiphrasis are alike true, is intended by its authors to apply universally or not universally. Every thing is both white and not white, *Ens* and *Non-Ens*; or this is true with some propositions, but not with regard to others. If the theorists take the latter ground and allow some exceptions, so far at least as those exceptions reach, firm truth is left (*αἷται δὲ ἐν ἐν ὁμολογούμεναι*—p. 1008, a. 11). But, if they take the former ground and allow no exceptions, they may still perhaps say: Wherever you can affirm with truth, we can also deny with truth; but, wherever we can deny with truth, we cannot in every case affirm with truth (a. 15). Meeting them upon this last ground, we remark that at any rate some negative propositions are here admitted to be knowable, and we obtain thus much of settled opinion; besides, wherever the negative is knowable, the corresponding affirmative must be still more knowable (a. 18). If they take the former ground and say that, wherever the negative is true, the affirmative is true also, they must either mean that each of them is true separately, or that neither of them is true separately but that both are true when enunciated together in a couple (a. 19). If they mean the latter, they do not talk either of these things or of any thing else: there is neither speech nor speaker, nothing but non-entity; and how can non-entity either speak or walk (a. 22)? Every thing would be confounded in one. If they mean the former—that affirmative and negative are each alike true taken separately, we reply that, since this must be true as much respecting one subject as respecting another, so there can be no distinction or difference between one subject and another; all must be alike and the same; if there be any difference of any kind, this must constitute a special and exceptional matter, standing apart from the theory now under discussion. Upon this view of the theory in question, then, as well as upon the preceding, we are landed in the same result: all things would be confounded into one (a. 27). All men would speak truly and all men alike (including the theorist himself, by his own admission) would speak falsely. Indeed in discussing with this theorist we have nothing to talk about; for he says nothing. He does not say, It is thus; he does not say, It is not thus; he says, It is both thus and not thus: then, again, he

negatives both, saying, It is neither thus nor not thus; so that there is nothing definite in what he says (a. 32).

Again, let us ask, Does he who believes things to be so, believe falsely, and he who believes things not to be so and so, believe falsely also, while he who believes both at once, believes truly? If this last person believes truly, what is meant by the common saying that such and such is the constitution of nature? If you even say that the last person does not indeed believe truly, but believes more truly than he who believes the affirmative alone, or he who believes the negative alone, we still have something definite in the constitution of nature, something which is really true, and not true and false at the same time. But, if there be no more truly or less truly—if all persons alike and equally speak truly and speak falsely—speech is useless to such persons; what they say, they at the same time unsay. If the state of their minds really corresponds to this description—if they believe nothing, but at once think so and so and do not think so and so—how do such persons differ from plants (b. 3–12; see Alexander's Scholion, p. 665, b. 9–17 Br., about the explanation of *μᾶλλον*, and the distinction between *λέγειν* and *ὑπολαμβάνειν*, p. 665, b. 31, seq.)?

It is certain, however, that these theorists are *not* like plants, and do not act as such in matters of ordinary life. They look for water, when thirsty; they keep clear of falling into a well or over a precipice. In regard to what is desirable or undesirable, at least, they do not really act upon their own theory—That both members of the Antiphrasis are equally true and equally false. They act upon the contrary theory—That one of the members is true, and the other false. But, if these theorists, admitting that they act thus, say that they do not act thus with any profession of knowing the truth, but simply on the faith of appearance and greater probability, we reply that this ought to impose upon them a stronger sense of duty in regard to getting at the truth. The state of Opinion stands to that of Knowledge in the same relation as that of sickness to health (p. 1008, b. 12–31).

Finally, to follow up this last argument, even if we grant to these theorists that both members of the Antiphrasis are true, still there are degrees of truth: the More and the Less pervades the constitution of nature (p. 1008, b. 32). We shall not surely affirm that two and three are equally even; nor shall we say, when any one affirms four to be five, that he commits an equal error with one who affirms four to be a thousand. Clearly one of these persons is more near to the truth, the other is less near to the truth. But, if there be such a thing as *being nearer to the truth*, there must surely be

some truth to which you have come nearer; and, even if this be denied, yet at least what we have already obtained (the *ἐγγύτερον τῆς ἀληθείας*) is something firmer and of a more truth-like character. We shall thus have got rid of that unqualified theory which forbids all definite conceptions of the intellect (*κἀν εἰ μὴ ἔστω, ἀλλ' ἤδη γέ τι ἐστὶ βεβαιότερον καὶ ἀληθινώτερον, καὶ τοῦ λόγου ἀπρὸς λαγμένοι ἂν εἴημεν τοῦ ἀκράτου καὶ κωλύοντός τι τῇ διανοίᾳ ὀρίσασθαι*—p. 1009, a. 2).

Having thus completed his refutation of the "unqualified theory," which declares both members of the Antiphrasis to be alike true, Aristotle passes to the examination of the Protagorean doctrine "Homo Mensura:" he affirms that it proceeds from the same mode of thinking, and that the two must stand or fall together. For, if all things which appear true are true, all things must be at once true and false; since the opposition of men's opinions is a notorious fact, each man thinking his own opinions true and his opponent's opinions false (p. 1009, a. 16).

Aristotle here distinguishes between two classes of reasoners, both of whom he combats, but who require to be dealt with in a very different manner: (1) Those who are sincerely convinced of what they affirm; (2) Those who have no sincere conviction, but merely take up the thesis as a matter for ingenious argument (*λόγου χάριν*), and will not relinquish it until they are compelled by a strong case made out against them. The first require persuasion, for their ignorance may be easily cured, and the difficulties whereby they are puzzled may be removed; the second require to be constrained by a forcible Elenchus or refutation, which may correct their misuse of dialectic and language (p. 1009, a. 22).

Aristotle begins with the first class. The difficulties which perplex them proceed from sensible things (*ἐκ τῶν αἰσθητῶν*—p. 1009, a. 23). They perceive contrary things generated by the same; and this leads them to believe that contraries are both alike real, and that the two members of the Antiphrasis are alike true. For, since Non-Ens cannot be generated, both the two contraries must have pre-existed together as Entia, prior to the generation in the thing as it then stood (a. 25). This is the opinion of Anaxagoras, who affirms that every thing is mixed in every thing; and of Demokritus, who affirms that Plenum and Inane—in other words, Ens and Non-Ens—exist alike and together in every part (a. 28). To these reasoners we reply, that in a certain sense they are right, in a certain sense wrong. The term Ens is used in two senses: the same thing may therefore be at once Ens and Non-Ens, but not in the same sense; moreover, from Non-Ens in one sense something

may be generated, but not from Non-Ens in the other. The same thing may be at once two opposites in power, but not in act (*δυνάμει μὲν γὰρ ἐνδέχεται ἅμα ταῦτ' εἶναι τὰ ἐναντία, ἐντελεχείᾳ δ' οὐ*—a. 35). We must farther remind these reasoners that the basis on which they proceed is not universally admissible; for there are various Entia of completely distinct and different essence, in which there is neither movement nor generation nor destruction of any sort (a. 38).

The doctrine held by Protagoras—That what appears true is truth, comes from the same source as the other doctrine—That both members of the Antiphrasis are true. Both doctrines proceed from the sensible world (*ὁμοίως δὲ καὶ ἡ περὶ τὰ φαινόμενα ἀλήθεια ἐνίοις ἐκ τῶν αἰσθητῶν ἐλήλυθεν*—p. 1009, b. 2; *ὁμοίως* refers back to a. 23—*αὕτη ἡ δόξα*, the other doctrine). Demokritus, Protagoras, and others observe that sensible phenomena are differently appreciated by different men, by other animals, and even by the same animal or man at different times. They do not think that truth upon these points of difference can be determined by a majority of voices. Demokritus says that either there is nothing true, or that we cannot know what it is (b. 10). These reasoners identified intelligence with sensible perception, and considered that this latter implied a change in the subject (b. 13): they conceived that what appeared to sense was necessarily true. Empedokles, Demokritus, Parmenides, Anaxagoras, Homer, &c., all lay down the doctrine, that the intelligence of men is varied with and determined by their sensible perceptions. They thought that men of wrong intelligence were nevertheless intelligent men, though their intelligence did not carry them to the same conclusions (b. 30); that if, both in one case and in the other, there were acts of intelligence, there must be realities corresponding to both, justifying the affirmative as well as the negative (b. 33).

That sincere and diligent enquirers should fall into these errors is very discouraging; but we must remark that their errors originated from this—that, while investigating the truth respecting Entia, they supposed that Entia were only the Percepta or Percipibilia (p. 1010, a. 2). Now in these Entia Perceptionis there is a great deal of the Indefinite and of mere Potential Entity (a. 3). Hence the theories of these reasoners were plausible, though not true. They saw that all the Entia Perceptionis were in perpetual movement, and they thought it impossible to predicate any thing with truth respecting what was at all times and in every way changing (a. 9). Kratylus and the Herakleitizers pushed this to an extreme. Even against their reasoning, we have

something to say in reply. We grant that they have some ground for imagining that what undergoes change does not exist at the moment when it changes (a. 16). Yet even here there is room for dispute; for that which is in the act of casting off, still retains something of that which is being cast off; and of that which is being generated, something must already be in existence. As a general doctrine, if something is in course of being destroyed, something must be in existence; and, if something is in course of being generated, there must exist something out of which it proceeds and by which it is being generated; nor can this go back *ad infinitum* (a. 22). Dropping this argument, however, let us advance another. Change as to Quantity is not the same as change as to Quality or Form. Let us grant that, as to Quantity, there is change continuous and perpetual—growth or decay—no such thing as stationary condition. But all our knowledge relates to Quality or Form, in which there is no continuous change (a. 24: *κατὰ μὲν οὖν τὸ ποσόν, ἔστω μὴ μένον· ἀλλὰ κατὰ τὸ εἶδος ἅπαντα γιγνώσκμεν*.—Compare Alex. Schol., p. 671, b. 5-22; p. 670, a. 36: Bonitz has good remarks in his note, pp. 202-204.).

Again, we have a farther reproach to make to these reasoners. Their argument is based only on the Percepta or Percipienda; yet, even as to these, it is true only as to the minority and untrue as to the majority. It is true merely as far as the sublunary Percepta; but as to the superlunary or celestial it is the reverse of truth. Our earth and its neighbourhood is indeed in continual generation and destruction; but this is an insignificant part of the whole. In affirming any thing respecting the whole, we ought to follow the majority rather than the minority (p. 1010, a. 28-31).

Lastly, we must repeat against these reasoners the argument urged just now. We must explain to them, that there exists, apart from and besides all generation, destruction, change, motion, &c., a certain Immovable Nature (*ἀκίνητός τις φύσις*—a. 34). Indeed their own doctrine—That all things both are and are not—would seem to imply an universal stationary condition rather than universal change (a. 38). There can be no change; for there is no prospective terminus which can be reached by change. Every thing is assumed as already existing.

We have now to remark upon the special doctrine of Protagoras—*πάν τὸ φαινόμενον ἀληθές*. If we grant that perception is always true upon matters strictly belonging to it, still phantasy is not identical with perception and we cannot say that what appears to the phantasy is always true (*τὸ φαινόμενον*—which implies a reference to *φαντασία*—p. 1010, b. 2). Besides, it is strange that thinkers

should puzzle themselves about the questions: Whether the magnitude and colour of objects is that which appears to a spectator near or to a spectator far off? and to a spectator healthy or jaundiced? Whether the weight of an object is as it appears to a weak or to a strong man? Whether objects are truly what they appear to men awake or to men asleep? Their own actions show that they do not think there is any doubt; for if, being in Libya, they happen to dream that they are in Athens, none of them ever think of going to the Odeium (b. 5-11). Moreover, respecting the future, as Plato remarks, the anticipations of the ignorant man are not so trustworthy as those of the physician, whether a patient will recover or not (b. 14). Then, again, in respect of present sensations, the perception of sight is not equally trustworthy with the perception of smell about a question of odour (b. 17); and the perception of smell will never report at the same time and about the same thing, that it is at once fragrant and not fragrant; nor, indeed, at different times about the affection itself, but only about the subject to which the affection belonged (b. 20). The same wine which tasted sweet last month, may now taste not sweet; but the sweet taste itself is the same now and last month, and the reports of the sense are never contradictory on this point. The sweet taste which is to come in the future will be of necessity like the sweet taste in the past. Now such necessity is abrogated by all those reasonings which affirm at once the two members of the Antiphrasis. These reasonings disallow all essence of every thing, and all necessity; for whatever is necessary, cannot be at once both thus and not thus (b. 21-30).

On the whole, if nothing exist except Percepta, nothing can exist without animated beings; since without these last there can be no perception. It is indeed true, perhaps, that under such a supposition there exist neither Percepta nor acts of Perception (which are affections of the Percipient); but that the Substrata which cause Perception should not exist even without Perception—is an impossibility (p. 1010, b. 33: τὸ δὲ τὰ ὑποκείμενα μὴ εἶναι, ἃ ποιεῖ τὴν αἰσθήσιν, καὶ ἀνευ αἰσθήσεως, ἀδύνατον). Perception is not perception of itself; there exists besides, apart from perception, something else which must necessarily be prior to perception. For the *Movens* is by nature prior to the *Motum*; and this is not the less true, though each of these two is enunciated in relation to the other (b. 35).

A difficulty is often started, and enquiry made, Who is to be the judge of health and sickness? Whom are we to recognize as the person to judge rightly in each particular case? Persons might as

well raise difficulty and make enquiry, Whether we are now awake or asleep? It is plain by men's actual conduct that they have no real doubt upon the point in any particular case; and both these enquiries arise from the same fundamental mistake—that men require to have every thing demonstrated, and will recognize nothing without demonstration. (Alex. says in Scholia, p. 675, b. 3: *ἔστι γὰρ πρὸς ἃ ἐκ φύσεως βέλτιον ἔχομεν ἢ ὥστε δεῖσθαι τῆς περὶ αὐτῶν ἀποδείξεως· ἔστι δὲ ταῦτα αἱ τε αἰσθήσεις, καὶ τὰ ἀξιώματα καὶ αἱ φυσικαὶ τε καὶ κοιναὶ ἔννοιαι*.) Those who sincerely and seriously feel this difficulty, may be expected to acquiesce in the explanation here given (p. 1011, a. 2–14). But those who put forward the difficulty merely for the sake of argument, must be informed that they require an impossibility. They require to have a refutative case made out against them (which can only be done by reducing them to a *συλλογισμὸς ἀντιφάσεως*); yet they themselves begin by refusing to acknowledge this refutation as sufficient, for they maintain the thesis—That both members of the Antiphrasis are alike and equally true (a. 16; compare Alex. Schol., p. 675, b. 20–28).

Those who maintain this last-mentioned thesis say, in other words, That every thing which appears true, is true. But this thesis of theirs cannot be defended except by the admission that every thing is relative, and that nothing is absolute. Accordingly they must take care to announce their thesis, not in absolute terms as it now stands, but in terms strictly relative: Every thing which appears true, appears true to some individual—at a certain moment of time—under certain circumstances and conditions (p. 1011, a. 24). For, if they affirm, in absolute phrase, that all things are alike false and true, on the ground that what appears true is true, urging that the same things do not appear true either to different persons, or to the same person at different times—nay, sometimes even to the same person at the same time, as may be seen by handling a pebble between two crossed fingers (*ἐν τῇ ἐπαλλάξει τῶν δακτύλων*—a. 33), so that it appears two to the touch, but only one to the sight;—we shall reply, that there is no such contradiction of judgment, if they confine themselves to the same person, the same time, and one and the same sense. In these cases, there is only one affirmation which appears to be true, and therefore, according to their theory, that affirmation is true. They are not, therefore, justified in concluding that every thing is alike true and false (b. 1).

They can only escape this refutation by avoiding to say, This is true, and by saying, This is true to such an individual, at such a time.

&c. ; that is, by making every affirmation relative to some person's opinion or perception. Hence the inference is, that nothing either ever has occurred or ever will occur, without the antecedent opinion of some person (*μηθενὸς προδοξάσαστος*—p. 1011, b. 6): if any thing ever has so occurred, it cannot be true that all things are relative to opinion. Moreover, if the Relatum be one, it must be relative to some one, some definite, Correlate; and, even if the same Relatum be both half and equal, it will not be equal in reference to a double Correlate, but half in reference to a double, and equal in reference to an equal (b. 9). Moreover, if *homo* and *conceptum* have both of them no more than a relative existence—that is, if both of them exist only in correlation with a *concipiens*—then the *concipiens* cannot be *homo*; it will be the *conceptum* that is *homo*. And, if every individual thing have existence only in relation to a *concipiens*, this *concipiens* must form the Correlate to an infinite number of Relata (b. 12). (All this is very briefly and obscurely stated in Aristotle. The commentary of Alexander is copious and valuable: one might suppose that he had before him a more ample text; for it is difficult to find in the present text all that his commentary states.)

Let thus much be said to establish the opinion, That the two members of the Antiphrasis (the Affirmative and the Negative) are not both true at the same time. We have shown whence it arises that some persons suppose both to be true; and what are the consequences in which those who hold this opinion entangle themselves. Accordingly, since both sides of the Antiphrasis cannot be truly predicated of the same subject, it is impossible that opposite attributes can belong at the same time to the same subject (p. 1011, b. 17: οὐδὲ τὰναντία ἅμα ὑπάρχειν ἐνδέχεται τῷ αὐτῷ). For one of these opposites includes in itself privation, and privation of a certain real essence; now privation is the negation of a certain definite genus. And, since affirmation and negation cannot be truly applied at the same time, it follows that opposite attributes cannot belong at the same time to the same subject. At least it is only possible thus far: one may belong to it absolutely, the other *secundum quid*; or both of them *secundum quid* only (τῶν μὲν γὰρ ἐναντίων θάτερον στέρησις ἐστὶν οὐχ ἥττον, οὐσίας δὲ στέρησις ἀπόφασις ἐστὶν ἀπὸ τινος ὀρισμένου γένους—b. 20).

But, also, there can be nothing intermediate between the two members of the Antiphrasis; we must of necessity either affirm or deny any one thing of any other (p. 1011, b. 24). This will appear clearly, when we have first defined what is Truth and Falsehood. To say that Ens is not, or that Non-Ens is, is false: To say

that Ens is, or that Non-Ens is not, is true. Accordingly, he who predicates *est*—or he who predicates *non est*—will speak truly or speak falsely, according as he applies his predicate to Ens or to Non-Ens. But he cannot, either in application to Ens or to Non-Ens, predicate *est aut non est* (b. 29). Such a predication would be neither true nor false, but improper and unmeaning. (I follow at b. 27 the text of the Berlin edition: ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται—which seems to me here better than that of Bonitz, who puts ὥστε καὶ ὁ λέγων τοῦτο εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται—following Alexander's explanation, Schol., p. 680, a. 33, which I cannot think to be correct, though Bonitz praises it much. Aristotle defines Truth and Falsehood: When you say *Ens est*, or *Non-Ens non est*, you speak truth; when you say *Ens non est*, or *Non-Ens est*, you speak falsehood. Accordingly, when you employ the predicate *est*, or when you employ the predicate *non est*, you will speak truly or falsehood, according as the subject with which you join it is Ens or is Non-Ens. But neither with respect to the subject Ens nor with respect to the subject Non-Ens, can you employ the disjunctive predicate—*est aut non est*.)

Again, a medium between the two horns of the Antiphrasis must be either a medium between opposites, like grey between white and black, or like the *neither* between man and horse. If it be the latter, it will never change; for all change is either from a negative to its affirmative (*non-bonum* to *bonum*) or *vice versâ*: now that which is both *non-homo* and *non-equus* must change, if it change at all, into that which is both *homo* and *equus*; but this is impossible. We see change always going on; but it is always change either into one of the two extremes or into the medium between them. But can we assume that there is such a medium (so that the case supposed will belong to the analogy of grey, halfway between white and black)? No, we cannot assume it; for, if we granted it, we should be forced to admit that there was change into white not proceeding from that which is not white: now nothing of the kind is ever perceived. There cannot therefore be any admissible medium halfway between the two members of the Antiphrasis—something which is neither white nor not-white, neither black nor not-black (p. 1011, b. 35: εἰ δ' ἔστι μεταξύ—if such medium be admitted—καὶ οὕτως εἴη ἂν τις εἰς λευκὸν οὐκ ἐκ μὴ λευκοῦ γένεσις· νῦν δ' οὐχ ὁράται).

Furthermore, whatever our intelligence understands or reasons upon, it deals with as matter affirmed or denied. The very definition of truth and falsehood recognizes them as belonging only to affirmation or negation: when we affirm or deny in a certain way,

we speak truth; when in another way, we speak falsely. Nothing is concerned but affirmation and denial (i.e., there is no mental operation midway between the two—p. 1012, a. 2-5). If there be any such medium or midway process, it is not confined to this or that particular Antiphasis, but belongs alike to all, and must lie apart from all the different Antiphasis—at least if it is to be talked of as a reality, and not as a mere possible combination of words; so that the speaker will neither speak truth, nor not speak truth; which is absurd (a. 7). It must also lie apart both from Ens and from Non-Ens; so that we should be compelled to admit a certain mode of change of Essence, which yet shall neither be generation nor destruction; which is impossible. (According to Aristotle's definition, all change of οὐσία must be either Generation, i.e., passage from τὸ μὴ ὄν to τὸ ὄν, or Destruction, i.e., passage from τὸ ὄν to τὸ μὴ ὄν.—See Alex. Schol. p. 681, b. 30-40.)

Again, there are certain genera in which negation carries with it the affirmation of an opposite; such as odd and even, in numbers. In such genera, if we are to admit any medium apart from and between the two members of the Antiphasis, we should be forced to admit some number which is neither odd nor even (p. 1012, a. 11). This is impossible: the definition excludes it. (Alexander gives this as the definition of number: πᾶς γὰρ ἀριθμὸς ἢ ἀρτίος ἐστὶν ἢ περιττός, καὶ ἀριθμὸς ἐστὶν ὅς ἢ ἀρτίος ἐστὶν ἢ περιττός—Schol. p. 682, a. 16.)

Again, if the Antiphasis could be divided, and a half or intermediate position found, as this theory contends, the division of it must be admissible farther and farther, *ad infinitum*. After bisecting the Antiphasis, you can proceed to bisect each of the sections; and so on. Each section will afford an intermediate term which may be denied with reference to each of the two members of the original Antiphasis. Two new Antiphasis will thus be formed, each of which may be bisected in the same manner; and so bisection, with the formation of successive new Antiphasis, may proceed without end (p. 1012, a. 13).

Again, suppose a questioner to ask you, Is this subject white? You answer, No. Now you have denied nothing else than the being-white: this is the ἀπόφασις, or negative member of the Antiphasis. But you have neither denied nor affirmed the intermediate stage between the affirmative and the negative; nor is there any answer possible by which you could do so. Therefore there is no real intermediate stage between them (ἐτι ὅταν ἐρομένου εἰ λευκὸν ἐστὶν εἴπῃ ὅτι οὐ, οὐθὲν ἄλλο ἀποπέφηκεν ἢ τὸ εἶναι· ἀπόφασις δὲ τὸ μὴ εἶναι—p. 1012, a. 15; see Alex. Schol. p. 682, b. 15-38, and Bonitz's

note. Bonitz suggests, though timidly, ἀποπέφηκεν instead of the common reading ἀποπέφυκεν, which none of the commentators explain, and which seems unintelligible. I think Bonitz is right, though ἀποπέφηκεν is an unknown tense from ἀπόφημι: it is quite as regular as ἀποφύσω or ἀπέφησα.).

The doctrines which we have been just controverting (Aristotle says) arise, like other paradoxes, either from the embarrassment in which men find themselves when they cannot solve a sophistical difficulty; or from their fancying that an explanation may be demanded of every thing. In replying to them, you must take your start from the definition, which assigns to each word one fixed and constant signification. The doctrine of Herakleitus—That all things are and all things are not—makes all propositions true; that of Anaxagoras—That every thing is intermingled with every thing—makes all propositions false: such mixture is neither good, nor not good; neither of the members of the Antiphrasis is true (a. 17–28). Our preceding reasonings have refuted both these doctrines, and have shown that neither of the two one-sided extremes can be universally true: neither the doctrine—Every proposition is true; nor that—Every proposition is false; still less that which comprehends them both—Every proposition is both true and false. Among these three doctrines, the second might seem the most plausible, yet it is inadmissible, like the other two (b. 4).

In debating with all these reasoners, you must require them (as we have already laid down), not to admit either existence or non-existence but, to admit a constant signification for each word. You must begin by defining truth and falsehood; each of them belongs only to affirmation in a certain way. Where the affirmation is true the denial is false; all propositions cannot be false; one member of each Antiphrasis must be true, and the other member must be false. Each of these doctrines labours under the often-exposed defect—that it destroys itself (p. 1012, b. 14, τὸ θρυλλούμενον—allusion to the Theætetus, according to Alexander). For whoever declares all propositions to be true, declares the contradictory of this declaration to be true as well as the rest, and therefore his own declaration not to be true. Whoever declares all propositions to be false, declares his own declaration to be false as well as all other propositions (b. 17). And, even if we suppose each of these persons to make a special exception in regard to the particular propositions here respectively indicated, still this will not serve. The man who declares all propositions to be false, will be compelled to admit an infinite number of true

propositions; because the proposition declaring the true proposition to be true, must itself be true; a second proposition declaring this last to be true, will itself be true; and so on to a third, a fourth, &c., in endless scale of ascent. The like may be said about the man who declares all propositions to be true: he too will be obliged to admit an infinite number of false propositions; for that which declares a true proposition to be false, must itself be false; and so on through a second, a third, &c., in endless scale of ascent as in the former case (b. 22).

It follows from what has been just proved, that those who affirm every thing to be at rest, and those who affirm every thing to be in motion, are both alike wrong. For, if every thing were at rest, the same propositions would be always true and always false. But this is plainly contrary to evidence; for the very reasoner who affirms it was once non-existent, and will again be non-existent. On the other hand, if every thing were in motion, no proposition would be true, and all would be false: but we have proved above that this is not so. Nor is it true that all things are alternately in motion or at rest; for there must be something ever-moving and other things ever-moved—and this prime movent must be itself immovable (p. 1012, b. 22–30).

BOOK E.

The First Philosophy investigates the causes and principles of Entia *quatenus* Entia (p. 1025, b. 3). It is distinguished from other sciences, by applying to all Entia, and in so far as they are Entia; for each of the other sciences applies itself to some separate branch of Entia, and investigates the causes and principles of that branch exclusively. Each assumes either from data of perception, or avowedly by way of hypothesis, the portion or genus of Entia to which it applies; not investigating the entity thereof, but presupposing this process to have been already performed by Ontology: each then investigates the properties belonging *per se* to that genus (b. 13). It is plain that by such an induction not one of these sciences can demonstrate either the essence of its own separate genus, nor whether that genus has any real existence. Both these questions—both *εἰ ἔστιν* and *τί ἔστιν*—belong to Ontology (b. 18). (The belief derived from perception and induction never amounts to demonstration, as has been shown in the *Analytica*;

what only
and other
things

ontology

you may always contest the universality of the conclusion—Alex. p. 734, b. 16, Br.)

Apart from Ontology, each of these separate sciences is either theoretical, or practical, or constructive (p. 1025, b. 21). Two of the separate sciences are theoretical—Physics and Mathematics; and, as Ontology (or Theology) is also theoretical, there are three varieties of theoretical science (p. 1026, a. 18).

Physical Science applies to subjects having in themselves the principle of mobility or change, and investigates, principally and for the most part, the Essence or Form thereof; yet not exclusively the Form, for the Form must always be joined with Matter. The subject of Physics includes Matter in its definition, like hollow-nosed, not like hollow (p. 1025, b. 33). All the animal and vegetable world is comprised therein; and even some soul, as far as soul is inseparable from Matter (*περὶ ψυχῆς ἐνίας θεωρῆσαι τοῦ φυσικοῦ, ὅση μὴ ἀνευ τῆς ὕλης ἐστίν*—p. 1026, a. 5).

Mathematics is another branch of theoretical science; applying to subjects immovable and in part inseparable from Matter; that is, separable from Matter only in logical conception (p. 1026, a. 7-15).

Theology, or First Philosophy, or Ontology, is conversant with subjects self-existent, immovable, and separable from Matter (p. 1026, a. 16).

Now all causes are necessarily eternal; but these more than any other, because they are the causes active among the visible divine bodies; for, clearly, if the Divinity has any place, it must be found among subjects of that nature; and the most venerable science must deal with the most venerable subjects (p. 1026, a. 19). The theoretical sciences are more worthy than the rest (*αἰετώτεραι*), and First Philosophy is the most worthy among the theoretical sciences (a. 22). A man may indeed doubt whether First Philosophy is distinguished from the other theoretical sciences by being more universal, and by comprehending them all as branches; or whether it has a separate department of its own, but more venerable than the others; as we see that Mathematics, as a whole, comprehends Geometry and Astronomy (a. 27). If there exist no other distinct Essence beyond the compounds of Nature (*παρὰ τὰς φύσει συνεστηκυίας*—a. 28), Physics would be the first of all sciences. But if there be a distinct immovable Essence, that is first; accordingly the science which deals with it is first, and, as being first, is for that reason universal (*καὶ καθόλου οὕτως ὅτι πρώτη*—a. 30). It is the province of this First Philosophy to theorize respecting *Ens quâ Ens*—what it is and what are its properties *quâ Ens* (a. 32). (Alexander says the First Philosophy is more universal than the rest, but does not

comprehend the rest: πρώτη πάντων καὶ καθόλου ὡς πρὸς τὰς ἄλλας, οὐ περιέχουσα ἐκείνας, ἀλλ' ὡς πρώτη—Schol. p. 736, a. 27.)

Now Ens has many different meanings:—

1. Ens κατὰ συμβεβηκός.
2. Ens ὡς ἀληθές—Non-Ens ὡς ψεῦδος.
3. Ens κατὰ τὰ σχήματα τῆς κατηγορίας (decuple).
4. Ens δυνάμει καὶ ἐνεργείᾳ.

1. Respecting the first, there can be no philosophical speculation (p. 1026. b. 3). No science, either theoretical, or practical, or constructive, investigates Accidents. He who constructs a house, does not construct all the accidents or concomitants of the house; for these are endless and indeterminate. It may be agreeable to one man, hurtful to a second, profitable to a third, and something different in relation to every different Ens; but the constructive art called house-building is not constructive of any one among these concomitants (b. 7–10). Nor does the geometer investigate the analogous concomitants belonging to his figures; it is no part of his province to determine whether a triangle is different from a triangle having two right angles (b. 12). This is easy to understand: the Concomitant is little more than a name—as it were, a name and nothing beyond (b. 13). Plato came near the truth when he declared that Sophistic was busied about Non-Ens; for the debates of the Sophists turn principally upon Accidents or Concomitants, such as, Whether musical and literary be the same or different? Whether Koriskus or literary Koriskus, be the same or different? Whether everything which now is, but has not always been, has become; as in the case of a man who being musical has become literary or being literary has become musical? and such like debates (see Alexander, Schol. p. 736, b. 40). For the Concomitant or Accident appears something next door to Non-Ens (ἐγγύς τι τοῦ μὴ ὄντος, p. 1026, b. 21), as we may see by these debates. Of other Entia there is generation or destruction, but of Accidents there is none (b. 23).

Nevertheless, we shall state, as far as the case admits, what is the nature of the Accident, and through what cause it is (τίς ἡ φύσις αὐτοῦ, καὶ διὰ τιν' αἰτίαν ἐστίν.—p. 1026, b. 25): we shall perhaps at the same time explain why there can be no science respecting it. Among Entia, some are always and necessarily the same, others are usually but not always the same. These which come to pass in neither of these two ways, are called Accidents or Concomitants. Of the first two, the Constant and the Usual, there is always some definite cause; of the third, or Accidents, there is none: the cause

of these is an Accident (p. 1027, a. 8). In fact, Matter is the cause of Accidents, admitting as it does of being modified in a way different from the usual and ordinary way (a. 13). It is plain that there can be neither science nor teaching of Accidents: the teacher can teach only what is constant or usual, and nothing beyond (a. 20).

Now of these Accidents, there is a certain principle or cause which it is indispensable to admit—Chance (*ἡ τοῦ ὁπότερ' ἐτυχε*—p. 1027, b. 12). There must be principles and causes, generable and destructible, yet which never are either generated or destroyed; if this were not so, all events would occur by necessity (p. 1026, b. 29–31). (Thus the builder, considered as cause of the house which he builds, has been generated, i.e., he has acquired the art of building and the proper accessories; and he will be destroyed, i.e., he will lose his art, and its conditions of being exercised. But, considered as the cause of the accidents belonging to the house, of its being annoying or inconvenient to A or B, he has not been generated nor will he be destroyed; i.e., he has neither acquired, nor will he lose, any skill or conditions tending to the production of this effect. As the contact of two substances is not generated, but appears of itself along with the substances when they are generated; as the limits of periods of time appear without generation along with the periods of time themselves; so the builder, when he acquires the power of building the house, stands possessed thereby, without any additional time or special generation, of the power to produce the concomitant accidents of the house. The house is thus produced by necessity; its concomitant accidents not by necessity—Alex. Schol. p. 738. a. 19–33.)

But whether this *τὸ ὁπότερ' ἐτυχε* is to be considered as referable to Matter, End, or Movent, is a point important to be determined (p. 1027, b. 15). Aristotle shows elsewhere that it is referable to the last of the three—*τὸ ποιητικόν* (Asklepius, p. 738, b. 41).

Having now said enough upon *Ens per Accidens*, we proceed to touch upon the second variety of *Ens*—*Ens* as the True, Non-*Ens* as the False.

This variety of *Ens* depends upon conjunction and disjunction, and forms an aggregate of two portions separately exhibited and brought together in the Antiphrasis. Such conjunction and disjunction is not in things themselves; but in the act of intelligence which thinks the two things together and not successively: in regard to simple matters and Essence, not even any special conjoining act of intelligence is required; such things must be conceived together, or

not conceived at all (p. 1027, b. 27). The mental act of apprehension, in these cases, is one and indivisible: you either have it entire at once, or not at all.

The cause of this variety of Ens is to be found in a certain affection of the intelligence; that of the preceding variety of Ens is an undefined or indeterminate cause (b. 34). Both these two varieties of Ens are peculiar, standing apart from what is most properly and *par excellence* Ens, i. e., from the Ens according to the ten Categories, on which we shall now say something.

BOOK Z.

WE have already stated that Ens is a *πολλαχῶς λεγόμενον*—distinguished according to the ten figures or genera called Categories. The first is *τί ἐστιν*, or *οὐσία* (*sensu dignissimo*)—Essentia, Substantia (p. 1028, a. 15). The remaining Categories are all appendages of Essentia, presupposing it, and inseparable from it; whereas Essentia is separable from all of them, and stands first in reason, in cognition, and in time. All the other Categories are called Entia only because they are quantities, qualities, affections, &c., of this Essentia Prima. A man may even doubt whether they are Entia or Non-Entia, since none of them is either *per se* or separable. We ought hardly to say that a quality or an affection, enunciated abstractedly, is Ens at all—such as *currere*, *sedere*, *sanitas*: we ought more properly to say that *currens equus*, *sedens homo*, *sanus miles*, are Entia, enunciating along with the quality the definite Essence or Individual Substance to which it belongs (a. 24). The quality then becomes Ens, because the subject to which it belongs is an individual Ens (a. 27). Essentia Prima is first in reason or rational explanation (*λόγῳ*, a. 34), because in the rational explanation of each of the rest that of Essentia is implicated. It is first also in cognition, because we believe ourselves to know any thing fully, when we are able to answer *Quid est?* and say that it is *homo* or *ignis*; not simply when we are able to answer *Quale* or *Quantum est?* So that in answering the great and often-considered question, *Quid est Ens?* we shall first understand it as meaning Essentia (*hoc sensu dignissimo*), and shall try to solve it so (b. 3, *περὶ τοῦ οὕτως ὄντος*).

Essentia (understood in this sense) appears to belong in the most manifest manner to bodies: we predicate it of animals, plants, the parts thereof, the natural bodies such as fire, water, and such like,

as well as the parts and aggregates thereof, such as the heaven and its parts, the stars, moon, and sun (p. 1028, b. 7-13). But are these the only Essences, or are there others besides? Or again, is it an error to call *these* Essences, and are all Essences really something different from these? This is a point to be examined. Some think that the limits of bodies (surface, line, point, monad) are Essences even more than the body and the solid; others admit no Essences at all beyond or apart from Percipienda; others again recognize other Essences distinct from and more eternal than the Percipienda; for example, Plato, who ranks Ideas or Forms, and the Mathematica, as two distinct Essences, while he places the Percipienda only third in the scale of Essence. Speusippus even enumerates a still greater number of Essences, beginning with the One, and proceeding to Numbers, Magnitudes, Soul, &c., with a distinct *ἀρχή* or principle for each (b. 21). Some others hold that Forms and Numbers have the same nature, and that there are other things coming near to these, such as lines and surfaces, in a descending scale to the Heaven and the Percipienda (b. 24). We must thus investigate which of these doctrines are true or false, whether there are any Essences beyond the Percipienda; and, if so, how they exist: whether there is any separable essence apart from Percipienda, and, if so, how and why; or whether there is nothing of the kind. But first we must give a vague outline what Essence is generally (*ὑποτιπωσασμένοις*, b. 31).

There are four principal varieties of meaning in this *Essentia*, *κυρίως* or *sensu dignissimo*: (1) τὸ τί ἦν εἶναι, (2) τὸ καθόλου, (3) τὸ γένος, (4) τὸ ὑποκείμενον.

We shall first speak about the fourth—*Substratum*—which is the subject of all predicates, but never itself the predicate of any subject. That which appears most of all to be *Essentia* is, τὸ ὑποκείμενον πρῶτον. This name applies, in one point of view, to *Matter*; in another, to *Form*; in a third, to the total result of the two implicated together (p. 1029, a. 1): *e.g.*, the brass, the figure, and the complete statue of figured brass. If, therefore, the *Form* be *prius*, and more *Ens*, as compared with the *Matter*, it will be also *prius* and more *Ens* as compared with the complete result. We get thus far in the adumbration of *Essentia*—that it is the subject of all predicates, but never itself a predicate.

But this is not sufficient to define it: there still remains obscurity. It would seem that *Matter* is *Essentia*; and that, if it be not so, nothing else is discernible to be so; for, if every thing else be subtracted, nothing (save *Matter*) remains. All things else are either affections, or agencies, or powers, of bodies; and, while length,

breadth, depth, &c., are quantities belonging to Essence, Quantity is not Essence, but something belonging to Essence as First Subject. Take away length, breadth, depth, and there will remain only that something which these three circumscribe; in other words, Matter—that which, in itself and in its own nature, is neither Quantity, nor Quality, but of which, Quantity, Quality, and the other Categories, are predicated. All these Categories are predicated of Essence, and Essence of Matter; so that Matter is the last remaining *per se* (p. 1029, a. 12–24). Take away Matter, and there remain neither affirmative nor negative predicates; for these negative predicates are just as much concomitants or accidents as the others (a. 25).

Upon this reasoning, it seems that Matter is the true Essence. Yet, on the other hand, this will be seen to be impossible. For the principal characteristic of Essence is to be separable and *Hoc Aliquid*. So that either Form, or the Compound of Form and Matter together, must be the true Essence. But this last, the Compound, may be dismissed as evidently unsuitable for the enquiry, not less than Matter separately; for it is manifestly posterior to either of the two components (p. 1029, a. 30). We must therefore investigate the Form, though it is full of difficulty (a. 33).

We shall begin the investigation from some of the *Percipienda*, which are acknowledged as Essence; for it is useful to go across from this starting-point to what is more cognizable (*πρὸ ἐργον γὰρ τὸ μεταβαίνειν εἰς τὸ γνωριμώτερον*—p. 1029, b. 3. These words ought properly to come immediately after *ζητητέον πρῶτον*—p. 1028, a. 35, and the intervening words now standing in the text, *ἐπεὶ δ' ἐν ἀρχῇ—περὶ αὐτοῦ*, ought to be transferred to a more proper place some lines lower down, immediately before the words, *καὶ πρῶτον εἰπωμεν*—p. 1029, b. 12. Bonitz has made this very just correction in his *Observatt.* pp. 129–130, referred to in his *Notes on the Metaphysica*.) Every man learns in this way—by proceeding from what is less cognizable by nature to what is more cognizable by nature. And the business (*ἐργον*) of learning consists in making what is most cognizable to nature, most cognizable to ourselves also; just as, in practical matters, proceeding from what is good for each, to make what is good by nature good also for each man's self. For it will often happen that things first and most cognizable to each man's self, are only faintly cognizable, and have little or nothing of *Ens* (b. 9). Yet still, we must try to become cognizant of things fully knowable, by beginning with things poorly knowable, but knowable to us (b. 12).

Taking up these *Percipienda*, for the purpose of searching for *Essentia* in them, we shall first advert to *τί ἦν εἶναι*, which we

discriminated as one of the characteristics of *Essentia*, saying something about the rational explanation or definition of it (p. 1029, a. 12). The $\tau.\eta.\epsilon.$ of each subject is what is affirmed of it *per se* (ἔστι τὸ $\tau.\eta.\epsilon.$ ἐκάστω δ λέγεται καθ' αὐτό—a. 13). Your essence is not to be musical; you are not musical by yourself: your essence is, what you are *by yourself*. Nor does it even include all that you are by yourself. Surface is not included in the essence of white; for the essence of surface is not the same thing as the essence of white. Moreover white surface, the compound of both, is not the essence of white; because white itself is included in the definition of white—which cannot be tolerated. The definition, which explains $\tau.\eta.\epsilon.$, must not include the very word of which you intend to declare the $\tau.\eta.\epsilon.$ If you intend to declare the $\tau.\eta.\epsilon.$ of white surface by the words smooth surface, this does not declare it all: you only declare that white is identical in meaning with smooth (b. 22).

Now, since there are compounds in every one of the Categories, we must enquire whether there is a $\tau.\eta.\epsilon.$ belonging to each of these. Is there, for example, a $\tau.\eta.\epsilon.$ for white man? Let the meaning of these two words be included in the single word garment. Is there a $\tau.\eta.\epsilon.$ for garment? What is it to be a garment? You cannot answer; for neither is this an enunciation *per se* (p. 1029, b. 29). Are we to say, indeed, that there are two distinct sorts of enunciation *per se*: one including an addition (ἐκ προσθέσεως), the other, not? You may define by intimating something to which the matter defined belongs; e.g., in defining white you may give the definition of white man. Or you may define by intimating something which is not essential but accessory to the matter defined; e.g., garment signifying white man, you may define garment as white. Whereas the truth is, that, though a white man is white, yet to be white is accessory and not essential to him (p. 1030, a. 1).

But can we in any way affirm that there is any $\tau.\eta.\epsilon.$ to garment (taken in the above sense)? Or ought we to say that there is none (p. 1030, a. 2; Bonitz. Obs. p. 120)? For the $\tau.\eta.\epsilon.$ is of the nature of $\tau\acute{o}\delta\epsilon\ \tau\iota$ (ὅπερ γὰρ $\tau\acute{o}\delta\epsilon\ \tau\iota$ ἔστι τὸ $\tau.\eta.\epsilon.$ —a. 3), or Hoc Aliquid, i.e., a particular concrete; but, when one thing is affirmed of another, as when we say white man, this is not of the nature of $\tau\acute{o}\delta\epsilon\ \tau\iota$, if $\tau\acute{o}\delta\epsilon\ \tau\iota$ belongs to Essences alone (a. 5). Thus it appears that $\tau\acute{o}\delta\epsilon\ \tau\iota$ belongs to all those matters of which the rational explanation can be given by Definition. For to give the equivalent of a name in many other words is not always to give a definition: if this were so, a paraphrase of any length, even the Iliad, might be called a definition. There can be no definition except of a primary some-

thing; which is affirmed, without being affirmed as something about another (a. 10). There will be no $\tau.\eta.\epsilon.$, therefore, except for species of a genus; for in these alone what is affirmed is not an affection or an accessory or by way of participation. Respecting every thing besides, there will be no $\tau.\eta.\epsilon.$ or definition, but there may be a rational explanation ($\lambda\acute{o}\gamma\omicron\varsigma$) of what the name signifies, or a more precise explanation substituted in place of a simpler (a. 16).

Yet have we not gone too far in restricting the applicability of $\tau.\eta.\epsilon.$ and Definition? and ought we not rather to say, that both the one and the other are used in many different senses (p. 1030, a. 18)? For the *Quid est* ($\tau\acute{o} \tau\acute{\iota} \acute{\epsilon}\sigma\tau\iota$) signifies in one way Essence and Hoc Aliquid, and in different ways all the other Categories each respectively. To all of them *Est* belongs, though not in like manner, but primarily to one and consequentially to the rest; so also *Quid est* belongs simply and directly to Essence, but in a certain way to the others (a. 21). Respecting Quale, Quantum, and the rest, we may enquire *Quid Est?* so that Quale also comes under the *Quid est*, though not absolutely or directly ($\sigma\acute{\upsilon}\chi \acute{\alpha}\pi\lambda\acute{\omega}\varsigma$, a. 25), but analogously to Non-Ens; for some assert in words that *Est* belongs to Non-Ens also though not absolutely, viz., *Non Ens est Non-Ens*—(a. 26).

Now we ought to be careful how we express ourselves about any particular matter, but we ought not to be less careful to determine how the matter itself really stands (p. 1030, a. 27: $\delta\epsilon\acute{\iota} \mu\acute{\epsilon}\nu \sigma\kappa\omicron\pi\epsilon\acute{\iota}\nu \kappa\alpha\acute{\iota} \tau\acute{o} \pi\acute{\omega}\varsigma \delta\epsilon\acute{\iota} \lambda\acute{\epsilon}\gamma\epsilon\iota\nu \pi\epsilon\rho\acute{\iota} \acute{\epsilon}\kappa\alpha\sigma\tau\omicron\nu, \sigma\acute{\upsilon} \mu\eta\nu \mu\acute{\alpha}\lambda\lambda\acute{\omicron}\nu \gamma\epsilon \eta \tau\acute{o} \pi\acute{\omega}\varsigma \acute{\epsilon}\chi\epsilon\iota$. This contrast of $\pi\acute{\omega}\varsigma \delta\epsilon\acute{\iota} \lambda\acute{\epsilon}\gamma\epsilon\iota\nu$ with $\pi\acute{\omega}\varsigma \acute{\epsilon}\chi\epsilon\iota$ appears to refer to what had been said two lines before: $\lambda\omicron\gamma\iota\kappa\acute{\omega}\varsigma \phi\alpha\sigma\acute{\iota} \tau\iota\nu\epsilon\varsigma \acute{\epsilon}\iota\nu\alpha\iota \tau\acute{o} \mu\eta \acute{\omicron}\nu$ —verbal propositions distinguished from real.). The phraseology used just before is clear, and we must therefore recognize that $\tau.\eta.\epsilon.$, as well as $\tau\acute{\iota} \acute{\epsilon}\sigma\tau\iota$, belongs absolutely and primarily to *Essentia*, but in a secondary way to the other Categories; that is not absolutely, but $\pi\omicron\iota\acute{\omega} \tau.\eta.\epsilon.$, $\pi\acute{\omicron}\sigma\omega \tau.\eta.\epsilon.$, &c. (a. 31). For we must either declare the Categories to be simply *æquivoca*, or we must recognize this addition and subtraction of the separate title of each, like the non-cognizable cognizable ($\acute{\omega}\sigma\pi\epsilon\rho \kappa\alpha\acute{\iota} \tau\acute{o} \mu\eta \acute{\epsilon}\pi\iota\sigma\tau\eta\tau\acute{\omicron}\nu \acute{\epsilon}\pi\iota\sigma\tau\eta\tau\acute{\omicron}\nu$ —a. 33. I do not understand these words, nor does the Scholiast or Bonitz explain them satisfactorily.). But the truth is, that they are neither *æquivoca* nor *univoca*, but in an intermediate grade of relation—not $\kappa\alpha\theta' \acute{\epsilon}\nu$, but $\pi\rho\acute{o}\varsigma \acute{\epsilon}\nu$ (b. 3.). People may express this in what phrases they like; but the truth is, that there is both $\tau.\eta.\epsilon.$ and Definition, directly and primarily, of Essence; and of the other Categories also, but not directly and primarily.

Of white man, you may give a rational explanation and a definition; but it will apply in a different manner to white and to the essence of man (b. 12).

There is a farther difficulty to be noticed. How are you to define any matter not simple but essentially compound, where two or more elements coalesce into an indivisible whole, like hollow-nosedness out of nose and hollowness. Here we have hollow-nosedness and hollowness belonging to the nose *per se*, not as an affection or accessory; not as white belongs to Kallias or man, but as male belongs to animal, or equal to quantity, *i. e.*, *per se* (p. 1030, b. 20). The subject is implicated with the predicate in one name, and you cannot enunciate the one apart from the other. Such predicates belong to their subject *per se*, but in a different sense (see Bonitz's note). You cannot properly define them, in the sense given above (b. 27). If definitions of such are to be admitted, it must be in a different sense: Definition and τ.η.ε. being recognized both of them as πολλαχῶς λεγόμενα. Definition therefore is the mode of explanation which declares the τ.η.ε., and belongs to Essences, either exclusively, or at least primarily, directly, and chiefly (p. 1031, a. 7-14).

✓ We have now to enquire—Whether each particular thing, and its τ.η.ε., are the same, or different (p. 1031, a. 15). This will assist us in the investigation of Essence; for apparently each thing is not different from its own Essence, and the τ.η.ε. is said to be the Essence of each thing.

In regard to subjects enunciated *per accidens*, the above two would seem to be distinct. White man is different from the being a white man. If these two were the same, the being a man would be the same as the being a white man; for those who hold this opinion affirm that man, and white man, are the same; and, if this be so, of course the being a man must also be the same as the being a white man. Yet this last inference is not necessary; for *same* is used in a different sense, when you say, Man and white man are the same, and when you say, The being a man and the being a white man are the same. But perhaps you may urge that the two predicates may become the same *per accidens* (*i. e.*, by being truly predicated of the same subject); and that, because you say truly, Sokrates is white—Sokrates is musical, therefore you may also say truly, The being white is the same as the being musical. But this will be denied (δοκεῖ δ' οὐ—p. 1031, a. 28).

In regard to subjects enunciated *per se*, the case is otherwise: here each thing is the same with its τ.η.ε. Suppose, *e. g.*, there exist any Essentiæ (such as Plato and others make the Ideas) prior to

all others; in that case, if the *αὐτοαγαθόν* were distinct from *τὸ ἀγαθὸν εἶναι*, and the *αὐτοζῶον* distinct from *τὸ ζῶον εἶναι*, there must be other Essences and Ideas anterior to the Platonic Ideas. If we believe *τ.η.ε.* to be *Essentia*, it must be an *Essentia* anterior and superior in dignity to these Ideas of Plato. Moreover, if the *Essentiæ* or Ideas, and the *τ.η.ε.*, be disjoined (*ἀπολελυμένοι*—p. 1031, b. 3), the first will be uncognizable, and the last will be non-existent (*τὰ δ' οὐκ ἔσται ὄντα*—b. 4). For to have cognition of a thing, is, to know its *τ.η.ε.* This will be alike true of all *τ.η.ε.*; all of them are alike existent or alike non-existent (b. 9). If *τὸ ὄντι εἶναι* be not identical with *τὸ ὄν*, neither is *τὸ ἀγαθὸν εἶναι* identical with *τὸ ἀγαθόν*, &c. But that of which *τὸ ἀγαθὸν εἶναι* is not truly predicable, is not *ἀγαθόν* (b. 11).

Hence we see that of necessity *τὸ ἀγαθόν* is one and the same with *τὸ ἀγαθὸν εἶναι*; likewise *τὸ καλόν*, with *τὸ καλὸν εἶναι*; and so in all cases where the term enunciates a subject primarily and *per se*, not a predicate of some other and distinct subject (p. 1031, b. 13: *ὅσα μὴ κατ' ἄλλο λέγεται, ἀλλὰ καθ' αὐτὰ καὶ πρῶτα*). This last is the characteristic and sufficient mark, even if the Platonic Ideas be not admitted; and even more evidently so, if they be admitted (b. 14). It is at the same time clear that, if the Ideas be what Plato declares them to be, the individual perceivable subjects here cannot be Essences; for the Ideas are necessarily Essences, but not as predicable of a subject. If they were Essences, in this last sense, they would be Essences *per participationem*; which is inconsistent with what is said about them by Plato (*ἔσονται γὰρ κατὰ μέγεθος*—b. 18).

These reasonings show that each separate thing, enunciated *per se* and not *per accidens*, is the same with its *τ.η.ε.*; that to know each thing, is, to know its *τ.η.ε.*; that, if you proceed to expose or lay them out, both are one and the same (*ὥστε κατὰ τὴν ἔκθεσιν ἀνάγκη εἶναι τι εἶναι ἄμφω*—p. 1031, b. 21; with Bonitz's explanation of *ἔκθεσις* in his Note).

But that which is enunciated *per accidens* (e.g., *album*, *musicum*) cannot be truly affirmed to be one and the same with its *τ.η.ε.*, because it has a double signification: it signifies both the accident and the subject to which such accident belongs; so that in a certain aspect it is identical with its *τ.η.ε.*, and in another aspect it is not identical therewith (p. 1031, b. 26). The being a man, and the being a white man, are not the same; but the subject for affection is the same in both (b. 28: *οὐ ταὐτὸ, πάθει δὲ ταὐτό*—obscure). The absurdity of supposing, that the *τ.η.ε.* of a thing is different from the thing itself, would appear plainly, if we gave a distinct

name to the $\tau.\eta.\epsilon.$ For there must be another $\tau.\eta.\epsilon.$ above this, being the $\tau.\eta.\epsilon.$ of the first $\tau.\eta.\epsilon.$; and it would be necessary to provide a new name for the second $\tau.\eta.\epsilon.$; and so forward, in an ascending march *ad infinitum*. What hinders us from admitting some things at once, as identical with their $\tau.\eta.\epsilon.$, if the $\tau.\eta.\epsilon.$ be *Essentia*? (b. 31). We see from the preceding reasoning that not only the thing itself is the same with its $\tau.\eta.\epsilon.$, but that the rational explanation ($\lambda\acute{o}\gamma\omicron\varsigma$) of both is the same; for One, and the being One, are one and the same not *per accidens*, but *per se* (p. 1032, a. 2). If they were different, you would have to ascend to a higher $\tau.\eta.\epsilon.$ of the being One; and above this, to a higher still, without end (a. 4).

It is therefore clear that, in matters enunciated *per se* and primarily, each individual thing is one and the same with its $\tau.\eta.\epsilon.$ The refutations brought by the Sophists against this doctrine, and the puzzles which they start, *e.g.*, Whether Sokrates and the being Sokrates are the same,—may be cleared up by the explanations just offered (p. 1032, a. 8). It makes no difference what particular questions the objector asks: one is as easy to solve as another (a. 10).

Of things generated, some come by Nature, some by Art, some Spontaneously. All generated things are generated out of something, by something, and into or according to something (p. 1032, a. 12). The word *something* applies to each and all the Categories. Natural generation belongs to all the things whose generation comes from Nature ($\epsilon\kappa\ \phi\acute{\upsilon}\sigma\epsilon\omega\varsigma$); having $\tau\acute{o}\ \epsilon\acute{\xi}\ \omicron\upsilon$ —what we call Matter, $\tau\acute{o}\ \iota\phi'\ \omicron\upsilon$ —one of the things existing by nature ($\tau\acute{\omega}\nu\ \phi\acute{\upsilon}\sigma\epsilon\iota\ \tau\iota\ \omicron\upsilon\tau\omega\upsilon$ —a. 17), and $\tau\acute{o}\ \tau\acute{\iota}$, such as a man, a plant, or the like, which we call Essences in the fullest sense ($\mu\acute{\alpha}\lambda\iota\sigma\tau\alpha\ \omicron\upsilon\sigma\acute{\iota}\alpha\varsigma$). All things generated either by Nature or Art have Matter: it is possible that each of them may be, or may not be; and this is what we call Matter in each (a. 20). As an universal truth ($\kappa\alpha\theta\acute{\omicron}\lambda\omicron\nu$), Nature includes (1) That *out of which*, or Matter; (2) That *according to which* ($\kappa\alpha\theta'\ \delta\acute{o}$), every thing which is generated having a definite nature or Form, such as plant or animal; That *by which*, or nature characterized according to the Form, being the same Form as the thing generated but in another individual; for a man begets a man (a. 24).

The other generations are called Constructions ($\pi\omicron\iota\acute{\eta}\sigma\epsilon\iota\varsigma$), which are either from Art, or from Power, or from Intelligence. It is with these as with natural generations: some of them occur both by spontaneity and by chance ($\kappa\alpha\iota\ \acute{\alpha}\pi\omicron\ \tau\alpha\upsilon\tau\omicron\mu\acute{\alpha}\tau\omicron\nu\ \kappa\alpha\iota\ \acute{\alpha}\pi\omicron\ \tau\acute{\upsilon}\chi\eta\varsigma$ —p. 1032, a. 29; the principle of these last is apparently $\delta\acute{\upsilon}\nu\alpha\mu\iota\varsigma$,

the second of the three *principia* announced just before (?)); both in the one and in the other, some products arise without seed as well as with seed, which we shall presently advert to.

The generations from Art are those of which the Form is in the mind. By Form I mean the τ.η.ε. of each thing and its First Essence (τὴν πρώτην οὐσίαν, p. 1032, b. 1). For, in a certain way, the Form even of contraries is the same; since the essence of privation is the opposite essence: for example, health is the essence of disease; for disease is declared or described as absence of health, and health is the rational notion existing in the mind and in science. Now a healthy subject is generated by such an antecedent train of thought as follows (γίνεται δὲ τὸ ὑγιὲς νοήσαντος οὕτως—b. 6):—Since health is so and so, there is necessity, if the subject is to attain health, that such and such things should occur, *e.g.*, an even temperature of the body, for which latter purpose heat must be produced; and so on farther, until the thought rests upon something which is in the physician's power to construct. The motion proceeding from this last thought is called Construction (b. 10), tending as it does towards health. So that, in a certain point of view, health may be said to be generated out of health, and a house out of a house; for the medical art is the form of health and the building art the form of the house: I mean the τ.η.ε., or the Essence without Matter, thereof (b. 14). Of the generations and motions here enumerated, one is called Rational Apprehension, viz., that one which takes its departure from the Principle and the Form; the other, Construction, viz., that which takes its departure from the conclusion of the process of rational apprehension (ἀπὸ τοῦ τελευταίου τῆς νοήσεως—b. 17). The like may be said about each of the intermediate steps: I mean, if the patient is to be restored to health, he must be brought to an even temperature. But the being brought to an even temperature, what is it? It is so and so; it will be a consequence of his being warmed. And this last again—what is it? So and so; which already exists potentially, since it depends upon the physician to produce it, the means being at his command (τοῦτο δ' ἤδη ἐπ' αὐτῷ—b. 21).

We see thus that the Constructive Agency (τὸ ποιοῦν) and the point from which the motion towards producing health takes its origin, is, when the process is one of Art, the Form present in the mind; and, when the process is one of Spontaneity, it proceeds from that which would be the first proceeding of the artist, if Art had been concerned. In the medical art, *e.g.*, the artist begins by imparting warmth. He does this by rubbing. But this

warmth might perhaps arise in the body without any such rubbing or interference by the artist. The warmth is the prime agent, in the case of spontaneous production. The warmth is either a part of health, or a condition to the existence of health, as bricks are to that of a house (p. 1032, b. 30).

Nothing can be generated, if nothing pre-existed—as has been already said before. Some part of what is generated must exist before: Matter pre-exists, as in-dwelling and not generated (ἡ γὰρ ὕλη μέρος ἐνυπάρχει γὰρ καὶ γίγνεται αὐτῇ—p. 1033, a. 1. I do not understand these last words: it ought surely to be—ἐνυπάρχει γὰρ καὶ οὐ γίγνεται αὐτῇ. Bonitz's explanation suits these last words better than it suits the words in the actual text.).

But something of the Form or rational explanation (τῶν ἐν τῇ λόγῳ) must also pre-exist. In regard to a brazen circle, if we are asked, *Quid est?* we answer in two ways: We say of the Matter—It is brass; We say of the Form—It is such and such a figure. And this is the genus in which it is first placed (p. 1033, a. 4).

The brazen circle has Matter in its rational explanation. But that which is generated, is called not by the name of the Matter out of which it is generated, but by a derivative name formed therefrom; not ἐκείνο, but ἐκείνινον. A statue is called not λίθος, but λίθινος. But, when a man is made healthy, he is not said to be the Matter out of which the health is generated; because that which we call the Matter is generated out of Privation along with the subject. Thus, both the man becomes healthy, and the patient becomes healthy; but the generation is more properly said to come out of Privation: we say, *Sanus ex ægroto generatur*, rather than, *Sanus ex homine generatur* (p. 1033, a. 12). In cases where the Privation is unmarked and unnamed, as, in the case of brass, privation of the spherical, or any other, figure, and, in the case of a house, the privation of bricks or wood, the work is said to be generated out of them like a healthy man out of a sick man (a. 14). Nevertheless the work is not called by the same name as the material out of which it is made, but by a paronym thereof; not ξύλον but ξύλινον (a. 18). In strict propriety, indeed, we can hardly say that the statue is made out of brass, nor the house out of wood; for the *materia ex quâ* ought to be something which undergoes change, not something which remains unchanged (a. 21).

It was remarked that in Generation there are three things or aspects to be distinguished—

1. Τὸ ὑφ' οὗ, ὅθεν ἡ ἀρχὴ τῆς γενέσεως.
2. Τὸ ἐξ οὗ—rather ὕλη than στέρησις.
3. Τί γίγνεται.

Having already touched upon the two first, I now proceed to the third. What is it that is generated? Neither the Matter, nor the Form, but the embodiment or combination of the two. An artisan does not construct either the brass or the sphere, but the brazen sphere. If he be said to construct the sphere, it is only by accident (*κατὰ συμβεβηκός*), since the sphere in this particular case happens to be of brass. Out of the entire subject-matter, he constructs a distinct individual Something (p. 1033, a. 31). To make the brass round, is not to make the round, or to make the sphere, but to make a something different: that is the Form (of sphericity) embodied in another thing (a. 32). For, if the artisan made the round or the sphere, he must make them out of something different, pre-existing as a subject: *e. g.*, he makes a brazen sphere, and in this sense—that he makes out of that Matter, which is brass, this different something, which is a sphere. If he made the sphere itself—the Form of sphere—he must make it out of some pre-existent subject; and you would thus carry back *ad infinitum* the different acts of generation and different pre-existent subjects (b. 4).

It is, therefore, clear that τὸ εἶδος, or by whatever name the shape of the percipiens is to be called, is not generated, nor is generation thereof possible; nor is there any τ.η.ε. thereof; that is, of the Form abstractedly: for it is this very τ.η.ε. which is generated or becomes embodied in something else, either by nature, or by art, or by spontaneous power (p. 1033, b. 8). The artisan makes a brazen sphere to exist, for he makes it out of brass (Matter), and the sphere (Form): he makes or embodies the Form into this Matter, and that is a brazen sphere (b. 11). If there be any generation of the sphere *per se* (τοῦ σφαίρᾳ εἶναι), it must be Something out of Something; for the Generatum must always be resolvable into a certain Matter and a certain Form. Let the brazen sphere be a figure in which all points of the circumference are equidistant from the centre; here are three things to be considered: (1) That in which what is constructed resides; (2) That which does so reside; (3) The entire Something generated or constructed—the brazen sphere. We see thus plainly that what is called the Form or Essence itself is not generated, but the combination called *according to the Form* is generated; moreover that in every Generatum there is Matter, so that the Generatum is in each case this or that (b. 19).

Can it be true, then, that there exists any sphere or house beyond those which we see or touch (*i. e.*, any Form or Idea of a sphere, such as Plato advocates)? If there existed any such, it could never have become or been generated into Hoc Aliquid. It signifies only *tale*. It is neither This nor That nor any thing

defined: but it (or rather the Constructive Agency) makes or generates *ex hoc tale*; and when this last has been generated, it is Tale Hoc (p. 1033, b. 22), and the entire compound is Kallias, or Sokrates, or *this* brazen sphere, while man, animal, &c., are analogous to brazen sphere generally. Even if there exist Platonic Forms by themselves, they could be of no use towards generation or the production of Essences. Frequently it is obvious that the Generans is like the Generatum, only a different individual. There is no occasion to assume the Platonic Form as an Exemplar; for the generating individual is quite sufficient of itself to be the cause of the Form in a new mass of Matter. The entire result is the given Form in these particular bones and flesh—called Kallias or Sokrates: each is different so far as Matter, but the same in the Form; for the Form is indivisible (p. 1034, a. 7).

But how does it happen that there are some things which are generated sometimes by art, sometimes spontaneously (*e.g.*, health), while in other things (*e.g.*, a house) spontaneous production never takes place? The reason is, that, in the first class of cases, the Matter which governs the work of generation by the artist, and in which itself a part of the finished product resides, is of a nature to be moved or modified by itself, while, in the second, this is not the fact; and to be moved, besides, in a certain manner and direction; for there are many things which are movable by themselves, but not in such manner and direction as the case which we are supposing requires. For example, stones are incapable of being moved in certain directions except by some other force, but they are capable of being moved by themselves in another direction; the like with fire. It is upon this that the distinction turns between some results which cannot be realized without an artist, and others which may perhaps be so realized (a. 17).

It is plain from what has been said that, in a certain sense, every thing is generated from something of the same name, as natural objects are (*e.g.*, a man); or from something in part bearing the same name (as a house out of the ideal form of a house), or from something which possesses that which in part bears the same name; for the first cause of the generation is itself part of the thing generated. The heat in the motion generates heat in the body; and this is either health, or a part of health, or the antecedent of one or other of these; hence it is said to produce or generate health, because it produces that of which health is concomitant and consequent (p. 1034, a. 30; see Bonitz's correction in his Note). Essence is in these cases the beginning or principle of all generations, just as in Demonstration it is the beginning or principle of all syllogisms

(a. 33). In the combinations and growths of Nature, the case is similar. The seed constructs, as Art constructs its products; for the seed has in it potentially the Form, and that from which comes the seed is, in a certain manner, of the same name with the product (b. 1). For we must not expect to find *all* generations analogous to that of man from man—woman also is generated from man, moreover, mule is not generated from mule—though this is the usual case, when there is no natural bodily defect (b. 3). Spontaneous generation occurs in the department of Nature, as in that of Art, wherever the Matter can be moved by itself in the same manner as the seed moves it: wherever the Matter cannot be so moved by itself, there can be no generation except the natural, from similar predecessors (b. 7, ἐξ αὐτῶν—compare Bonitz's note: "non ex ipsis, sed ἐξ αὐτῶν τῶν ποιούντων").

This doctrine—That the Form is not generated, does not belong to Essence alone, but also to all the other Categories alike—Quality, Quantity, and the rest (p. 1034, b. 9). It is not the Form Quality *per se* which is generated, but *tale lignum, talis homo*: nor the Form Quantity *per se*, but *tantum lignum* or *animal* (b. 15). But, in regard to Essence, there is thus much peculiar and distinctive as compared with the other Categories: in the generation of Essence, there must pre-exist as generator another *actual* and *complete* Essence; in the generation of Quality or Quantity, you need nothing pre-existing beyond a *potential* Quality or a *potential* Quantity (b. 16).

A difficult question arises in this way: Every definition is a rational explanation consisting of parts; and, as the parts of the explanation are to the whole explanation, so are the parts of the thing explained to the whole thing explained. Now is it necessary, or not, that the rational explanation of the parts shall be embodied in the rational explanation of the whole (p. 1034, b. 22)? In some cases it appears to be so; in others, not. The rational explanation of a circle does not include that of its segments; but the rational explanation of a syllable does include that of its component letters. Moreover, if the parts are prior to the whole, and if the acute angle be a part of the right angle, and the finger a part of the man, the acute angle must be prior to the right angle, and the finger to the man. Yet the contrary seems to be the truth: the right angle seems prior, also the man; for the rational explanation of acute angle is given from right angle, that of finger from man: in respect to existing without the other, right angle and man seem *priora*. In fact the word *part* is equivocal, and it is only one of its meanings

to call it—that which quantitatively measures another (b. 33). But let us dismiss this consideration, and let us enquire of what it is that Essence consists, as parts (b. 34). If these are (1) Matter, (2) Form, (3) The Compound of the two, and if each of these three be Essence, Matter must be considered, in a certain way, as a part of something, yet in a certain way as not so; in this latter point of view, nothing being a part except those elements out of which the rational explanation of the Form is framed (p. 1035, a. 2). Thus, flesh is not a part of flatness, being the matter upon which flatness is generated or superinduced, but flesh is a part of flat-nosedness; the brass is a part of the entire statue, but not a part of the statue when enunciated as Form, or of the ideal statue. You may discriminate and reason separately upon the statue considered as Form (apart from the complete statue); but you cannot so discriminate the material part *per se*, or the statue considered as Matter only (a. 7). Hence the rational explanation of the circle does not contain that of the segments of the circle; but the rational explanation of the syllable does contain that of the component letters. The letters are parts of the Form, and not simply the Matter upon which the Form is superinduced; but the segments are parts in the sense of being the Matter upon which the Form of the circle is superinduced (a. 12): they are, however, nearer to the Form than the brass, when the Form of a circle or roundness is generated in brass (a. 13). In a certain way, indeed, it cannot be said that *all* the letters are contained in the rational explanation of the syllables; *e.g.*, the letters inscribed in wax are not so contained, nor the sounds of those letters vibrating in the air; both these are a part of the syllable, in the sense of being the perceivable matter thereof (a. 17: *ὡς ἔλη αἰσθητή*). If a man be destroyed by being reduced to bones, ligaments, and flesh, you cannot for that reason say, that the man is composed of these as of parts of his Essence, but as parts of his Matter: they are parts of the entire man, but not of the Form, nor of what is contained in the rational explanation; accordingly they do not figure in the discussions which turn upon rational explanation, but only when the discussions turn upon the entire or concrete subject (a. 23). Hence, in some cases, things are destroyed into the same *principia* out of which they are formed; in other cases, not. To the first class, belong all things which are taken in conjunction with Matter, such as the flat-nosed or the brazen circle; to the second class, those which are taken disjoined from Matter, with Form only. Objects of the first class, (*i.e.*, the concretes) have thus both *principia* and parts subordinate; but neither the one nor the other belong to the Form alone (a. 31).

The plaster-statue passes when destroyed into plaster, the brazen circle into brass, Kallias into flesh and bones; and even the circle, when understood in a certain sense, into its segments, for the term circle is used equivocally, sometimes to designate the Form of a circle, sometimes to designate this or that particular circle—particular circles having no name peculiar to themselves (b. 3).

That which has been already said is the truth; yet let us try to recapitulate it in a still clearer manner (p. 1035, b. 4). The parts of the rational explanation or notion, into which that notion is divided, are prior to the notion, at least in some instances. But the notion of a right angle is prior to that of an acute angle or is one of the elements into which the notion of an acute angle is divided; for you cannot define an acute angle without introducing the right angle into your definition, nor can you define the semi-circle without introducing the circle, nor the finger without introducing the man—the finger being such and such a part of the man. The parts into which man is divided as Matter, are posterior to man; those into which man is divided as parts of his Form or Formal Essence, are prior to man—at least some of them are so (b. 14). Now, since the soul of animals (which is the Essence of the animated being—b. 15) is the Essence and the Form and the τ . η . ϵ . of a suitably arranged body; and, since no good definition of any one part can be given, which does not include the function of that part, and this cannot be given without the mechanism of sense (b. 18), it follows that the parts of this soul, or some of them at least, are prior to the entire animal, alike in the general and in each particular case. But the body and its parts are posterior to the soul or Form, and into these, as parts, the entire man (not the Essence or Form) is divided. These parts are, in a certain sense, prior to the entire man, and, in a certain sense, not; for they cannot even exist at all separately (b. 23): the finger is not a finger unless it can perform its functions, i.e., unless it be animated by a central soul; it is not a finger in every possible state of the body to which it belongs; after death, it is merely a finger by equivocation of language. There are, however, some parts, such as the brain or heart, to which the Form or Essence is specially attached which are neither prior nor posterior but *simul* to the entire animal (b. 25). ✓

Man, horse, and such like, which are predicated universally of particular things, are not *Essentia*; they are compounds of a given Form and a given Matter (but of that first Matter) which goes to compose Universals. It is out of the last Matter, which comes lowest in the series, and is already partially invested

with Form, that Sokrates and other particular beings are constituted (p. 1035, b. 30).

Thus, there are parts of the Form or *τ.η.ε.*, parts of the Matter, and parts of the Compound including both. But it is only the parts of the Form that are included as parts in the rational explanation or notion; and this notion belongs to the Universal; for circle and the being a circle, soul and the being a soul—one and the same (p. 1036, a. 2). Of the total compound (this particular circle), no notion, no definition, can be given: whether it be a particular circle perceivable by sense, in wood or brass, or merely conceivable, such as the mathematical figures. Such particular circles are known only along with actual perception or conception (a. 6. *Νοεῖν* here means the equivalent of *ἀφαιρῆν* = *χωρίζειν τῇ διανοίᾳ*—"die Thätigkeit des Abstrahirens, durch welche das Mathematische gewonnen wird"—Schwegler ad loc. Comm., p. 101, Pt. II.): when we dismiss them as actualities from our view or imagination, we cannot say clearly whether they continue to exist or not; but we always talk of them and know them by the rational explanation or definition of the universal circle (a. 7: *ἀπελθόντας δ' ἐκ τῆς ἐντελεχείας οὐ δῆλον πότερον ποτέ εἰσιν ἢ οὐκ εἰσίν, ἀλλ' αἰεὶ λέγονται καὶ γνωρίζονται τῷ καθόλου λόγῳ*. I apprehend that Aristotle is here speaking of the *κύκλος νοητός* only, not of the *κύκλος αἰσθητός* or *χαλκοῦς κύκλος*. He had before told us that, when the *χαλκοῦς κύκλος* passes out of *ἐντελέχεια* or *φθείρεται*, it passes into *χαλκός*. He can hardly therefore mean to say that, when the *χαλκοῦς κύκλος* passes out of *ἐντελέχεια*, we do not clearly know whether it exists or not. But respecting the *κύκλος νοητός* or mathematical circle, he might well say that we did not clearly know whether it existed at all under the circumstances supposed: if it cease to exist, we cannot say *εἰς ὃ φθείρεται*. Matter is unknowable *per se* (*καθ' αὐτήν*—a. 9, i.e., if altogether without Form). One variety of Matter is perceivable by sense, as brass, wood, and all moveable matter; another variety is conceivable, viz., that which exists in the perceivable variety, but not *quā* perceivable—the mathematical figures (*νοητὴ δὲ ἢ ἐν τοῖς αἰσθητοῖς ὑπάρχονσα μὴ ἢ αἰσθητά, οἷον τὰ μαθηματικά*—a. 12; i.e., making abstraction of the acts of sense, or of what is seen and felt by sense, viz., colour by the eye, resistance by the touch; and leaving behind simply the extension or possibility of motion, which is a geometrical line).

We have now laid down the true doctrine respecting Whole and Part, Prius and Posterior. And, if any one asks whether the right angle, the circle, the animal, is prior or not to the parts into which it is divided and out of which it is formed, we cannot answer abeo-

lutely either Yes or No. We must add some distinguishing words, specifying what we assert to be prior, and to what it is prior (p. 1036, a. 19). If by the soul you mean the Form or Essence of the living animal, by the circle, the Form of the circle, by the right angle, the Form or Essence thereof,—then this Form is posterior in regard to the notional parts of which it is constituted, but prior in regard to the particular circle or right angle. But, if by soul you meant the entire concrete animal, by right angle or circle, these two figures realized in brass or wood, then we must reply that any one of these is prior as regards the material parts of which it is constituted (a. 25).

Another reasonable doubt arises here (*ἀποφαίται δ' εἰκότως*—p. 1036, a. 26) as to which parts belong to the Form alone, which to the entire Concrete. Unless this be made clear, we can define nothing; for that which we define is the Universal and the Form, and, unless we know what parts belong to the Matter and what do not, the definition of the thing can never be made plain (a. 30). Now, wherever the Form is seen to be superinduced upon matters diverse in their own Form, the case presents no difficulty: every one sees circles in brass, stone, wood, &c., and is well aware that neither the brass, nor the stone, belongs to the Form or Essence of the circle, since he easily conceives a circle without either. But, if a man had never seen any circles except brazen circles, he would have more difficulty in detaching mentally the circle from the brass, and would be more likely to look upon brass as belonging to the Form of circle; although, in point of fact, he would have no more logical ground for supposing so than in the case just before supposed; for the brass might still belong only to the Matter of circle (b. 2). This is the case with the Form of man. It is always seen implicated with flesh, bones, and such like parts. Are these parts of the Form of man? Or are they not rather parts of the Matter, though we are unable to conceive the Form apart from them, because we never see it in conjunction with any other Matter? This is at least a possibility, and we cannot see clearly in what cases it must be admitted. Some theorists are so impressed by it as to push the case farther, and apply the same reasoning to the circle and triangle. These theorists contend that it is improper to define a circle and a triangle by figure, lines, continuity, &c., which (they affirm) are only parts of the Matter of circle and triangle; as flesh and bones are parts of the Matter of man. They refer all of them to numbers as the Form, and they affirm that the definition of the dyad is also the definition of a line (b. 12). Among the partisans of Ideas, some call the dyad *αὐτογραμμή*; others call it the Form of

a line; saying that in some cases the Form and that of which it is the Form are the same, as the dyad and the Form of the dyad, but that this is not true about line. (These two opinions seem to be substantially the same, and only to differ in the phrase. *Ἀντὶ γραμμῆς* means the same as *τὸ εἶδος τῆς γραμμῆς*: it seems to have been a peculiar phrase adopted by some Platonists, but not by all. Others preferred to say *τὸ εἶδος τῆς γραμμῆς*.) These reasonings have already misled the Pythagoreans, and are likely to mislead others also: they would conduct us to the recognition of one and the same Form in many cases where the Form is manifestly different: they lead us even to assume one single Form universally, reducing every thing besides to be no Form, but merely Matter to that one single real Form. By such reasoning, we should be forced to consider all things as One (b. 20), which would be obviously absurd.

We see from hence that there are real difficulties respecting the theory of Definition, and how such difficulties arise. It is because some persons are forward overmuch in trying to analyse every thing and in abstracting altogether from Matter; for some things include Matter along with the Form, or determined in a certain way, i.e., this along with that, or these things in this condition (p. 1036, b. 22). The comparison which the younger Sokrates was accustomed to make about the animal is a mistaken one (b. 24): it implies that man may be without his material parts, as the circle may exist without brass. But this analogy will not hold; animal is something perceivable by sense and cannot be defined without motion; of course, therefore, not without bodily members organized in a certain way (b. 30). The hand is not a part of man, when it is in any supposable condition, but only when it can perform its functions, that is, when it is animated; when not animated, it is not a part (b. 32). Clearly the soul is the first Essence or Form, the body is Matter, and man or animal is the compound of both as an Universal; while Sokrates, Koriskus &c., are as particulars to this Universal, whether you choose to take Sokrates as soul without body, or as soul with body (p. 1037, a. 5-10: these words are very obscure).

Respecting Mathematical Entia, why are not the notions of the parts parts of the notion of the whole? e.g., why is not the notion of a semi-circle part of the notion of a circle? Perhaps it will be replied that this circle and semi-circle are not perceivable by sense: but this after all makes no difference; for some things even not perceivable by sense involve Matter along with them, and indeed Matter is involved in every thing which is not τ. η. ε.

and Form αὐτὸ καὶ αὐτό. The semi-circles are not included as parts of the notion of the universal circle; but they are parts of each particular circle: for there is one Matter perceivable and another cogitable (p. 1036, a. 34.—Bonitz remarks that these words from p. 1036, a. 22 to p. 1037, a. 5, are out of their proper place). Whether there be any other Matter, besides the Matter of these Mathematical Entia, and whether we are to seek a distinct Form and Essence for them—such as numbers, must be reserved for future enquiry. This has been one of our reasons for the preceding chapters about perceivable Essences; for these last properly belong to the province of Second Philosophy—of the physical theorist (τῆς φυσικῆς καὶ δευτέρας φιλοσοφίας ἔργον—p. 1037, a. 15). The physical philosopher studies not merely the Matter, but the Form or notional Essence even more (a. 17).

We are now in a position to clear up what was touched upon in the Analytica (Anal. Poster. II. p. 92, a. 27; also, De Interp. v. p. 17, a. 13), but not completed, respecting Definition. How is it that the definition is One? We define man *animal bipes*: How is it that this is One and not Many? Man and white are two, when the latter does not belong to the former: when it does so belong to and affects the former, the two are One—white man (p. 1037, b. 16): that is, they are One κατὰ πάθος. But the parts included in the definition are not One κατὰ πάθος, nor are they one κατὰ μέγεθος; for the Genus cannot be said to partake of the Differentia. If it did, it would at one and the same time partake of Opposita, for the Differentia are Opposita to each other. And, even if we say that the Genus does partake of the Differentia, the same difficulty recurs, when the Differentia are numerous. The Genus must partake alike and equally of all of them; but how is it that all of them are One, and not Many? It cannot be meant that all of them belong essentially to the thing; for, if that were so, all would be included in the definition, which they are not. We want to know why or how those Differentia which are included in the definition coalesce into One, without the rest: for we call the *definiend* ἐν τῇ καὶ τόδε τῇ (b. 27).

In answering this question, we take, as a specimen, a definition which arises out of the logical subdivision of a Genus (p. 1037, b. 28). Definition is given by assigning the Genus and Difference: the Genus is the Matter, the Difference is the Form or Essence; the two coalesce into one as Form and Matter. In the definition of man—*animal bipes*—*animal* is the Matter and *bipes* the Form; so that the two coalescing form an essential One. It does not signify through how many stages the logical subdivision is carried, provided it be

well done; that is, provided each stage be a special and appropriate division of all that has preceded. If this condition be complied with, the last differentia will include all the preceding, and will itself be the Form of which the genus serves as Matter. You divide the genus animal first into ζῶον ὑπόπουν—ζῶον ἀποῦν; you next divide ζῶον ὑπόπουν into ζῶον ὑπόπουν δίπουν—ζῶον ὑπόπουν πολύπουν; or perhaps into ζῶον ὑπόπουν σχιζόπουν—ζῶον ὑπόπουν ἄσχιστον. It is essential that the next subdivision applied to ζῶον ὑπόπουν should be founded upon some subordinate differentia specially applying to the feet (p. 1038, a. 14: αὐταὶ γὰρ διαφοραὶ ποδός· ἡ γὰρ σχιζοποδία ποδότης τις). If it does not specially apply to the feet, but takes in some new attribute (e. g., πτερωτόν, ἄπτερον), the division will be unphilosophical. The last differentia ζῶον δίπουν includes the preceding differentia ὑπόπουν: to say ζῶον ὑπόπουν δίπουν would be tautology. Where each differentia is a differentia of the preceding differentia, the last differentia includes them all and is itself the Form and Essence, along with the genus as Matter (a. 25). The definition is the rational explanation arising out of these differences, and by specifying the last it virtually includes all the preceding (a. 29: ὁ ὁρισμὸς λόγος ἐστὶν ὁ ἐκ τῶν διαφορῶν, καὶ τοῦτων τῆς τελευταίας κατὰ γὰρ τὸ ὀρθόν).

In the constituents of the Essence, there is no distinctive order of parts; no subordination of *prius* and *posterius*; all are equally essential and coordinate (τάξεις δ' οὐκ ἔστιν ἐν τῇ οὐσίᾳ—p. 1038, a. 33).

As we are treating now about Essence, it will be convenient to go back to the point from which we departed, when we enumerated the four varieties recognized by different philosophers. These were (1) The Subject—Substratum—Matter, which is a subject of predicates in two different ways: either as already an Hoc Aliquid and affected by various accidents, or as not yet an Hoc Aliquid, but simply Matter implicated with Entelechy (p. 1038, b. 6); (2) Form—Essence—the τ. η. ε.; (3) The Compound or Product of the preceding two; (4) The Universal (τὸ καθόλου). Of these four, we have already examined the first three, we now proceed to the fourth.

Some philosophers consider the Universal to be primarily and eminently Cause and Principle (p. 1038, b. 7). But it seems impossible that any thing which is affirmed universally can be Essence. For that is the First Essence of each thing which belongs to nothing but itself; but the Universal is by its nature common to many things. Of which among these things is it the Essence? Either of all or of no one. Not of all certainly; and, if it be the Essence of any one, the rest of them will be identical

with that one; for, where the *Essence* is one, the things themselves are one (b. 15). Besides, the *Essence* is that which is not predicated of any subject: but the *Universal* is always predicated of a subject.

Perhaps, however, we shall be told, that the *Universal* is not identical with $\tau.\eta.\epsilon.$, but is *Essence* which is immanent in or belongs to $\tau.\eta.\epsilon.$, as animal in man and horse. But this cannot be admitted. For, whether we suppose animal to be definable or not, if it be essence of any thing, it must be the essence of something to which it belongs peculiarly, as *homo* is the essence of man peculiarly; but, if animal is to be reckoned as the essence of man, it will be the essence of something to which it does not peculiarly belong; and this contradicts the definition of *Essence* (p. 1038, b. 15–23. This passage is very obscure, even after Bonitz and Schwegler's explanatory notes. I incline to Schwegler, and to his remark, *Comm. II.* p. 115, that the text of b. 23 ought to be written $\epsilon\nu\ \tilde{\phi}\ \mu\eta\ \acute{\omega}\varsigma\ \acute{\iota}\delta\iota\omicron\nu\ \acute{\iota}\pi\acute{\alpha}\rho\chi\epsilon\iota.$).

Again, it is impossible that *Essence*, if composed of any elements, can be composed of what is not *Essence*, as of *Quality*; for this would make *Quality prius* as regards *Essence*; which it cannot be, either in reason ($\acute{\lambda}\acute{o}\gamma\omega$), or in time, or in generation. If this were so, the affections would be separable from *Essences* (p. 1038, b. 28). *Essence*, if composed of any thing, must be composed of *Essence*.

Once more, if the individual man or horse are *Essences*, nothing which is in the definition of these can be *Essence*; nor apart from that of which it is *Essence*; nor in any thing else. There cannot be any man, apart from individual men (p. 1038, b. 34).

Hence we see clearly that none of the universal predicates are *Essence*: none of them signify *Hoc Aliquid*, but *Tale*. To suppose otherwise, would open the door to many inadmissible consequences, especially to the argument of the 'Third Man' (p. 1039, a. 2).

Another argument to the same purpose:—It is impossible that *Essence* can be composed of different *Essences* immanent in one *Entelechy*. Two in the same *Entelechy* can never be One in *Entelechy*. If indeed they be two *in potentiâ*, they may coalesce into one *Entelechy*, like one double out of two potential halves. But *Entelechy* establishes a separate and complete existence (p. 1039, a. 7); so that, if *Essence* is One, it cannot be made up of distinct *Essences* immanent or inherent. Demokritus, who recognized only the atoms as *Essences*, was right in saying, that two of them could not be One, nor one of them Two. The like is true about number, if number be, as some contend, a synthesis of monads. For either the dyad is not One; or else the monads included therein are not monads $\acute{\epsilon}\nu\tau\epsilon\lambda\epsilon\chi\epsilon\acute{\iota}\alpha$ (a. 14).

Here however we stumble upon a difficulty. For, if no Essence can be put together out of Universals, nor any compound Essence out of other Essences existing as Entelechies, all Essence must necessarily be simple and uncompounded, so that no definition can be given of it. But this is opposed to every one's opinion, and to what has been said long ago, that Essence alone could be defined; or at least Essence most of all. It now appears that there can be no definition of Essence, nor by consequence of any thing else. Perhaps, however this may be only true in a certain sense: in one way, definition is possible; in another way, not. We shall endeavour to clear up the point presently (p. 1039, a. 22.—Schwegler says in his note upon this passage: "Die von Aristoteles häufig berührte, doch nie zur abschliessenden Lösung gebrachte, Grundaporie des aristotelischen Systems"—Comm. II. p. 117).

Those who maintain that Ideas are self-existent are involved in farther contradictions by admitting at the same time that the Species is composed out of Genus and Differentia. For, suppose that these Ideas are self-existent and that αὐτοζῶν exists both in man and horse: αὐτοζῶν is, in these two, either the same or different numerically. It is, of course, the same in definition or notion (λόγῳ); of that there can be no doubt. If it be numerically same (ὡςπερ οὐδὲ σαυτῇ) in man and in horse, how can this *same* exist at once in separate beings, unless we suppose the absurdity that it exists apart from itself (p. 1039, b. 1)? Again, are we to imagine that this generic Ens, αὐτοζῶν, partakes at the same time of contrary differentia—the dipod, polypod, apod? If it does not, how can dipodic or polypodic animals really exist? Nor is the difficulty at all lessened, if, instead of saying that the generic Ens partakes of differentia, you say that it is *mixed* with them, or *compounded* of them, or *in contact* with them. There is nothing but a tissue of absurdities (πάντα ἄτοπα—b. 6).

But take the contrary supposition and suppose that the αὐτοζῶν is numerically different in man, horse, &c. On this admission, there will be an infinite number of distinct beings of whom the αὐτοζῶν is the Essence; man, for example, since animal is not accidental, but essential, as a constituent of man (p. 1039, b. 8). Αὐτοζῶν will thus be Many ("ein Vielerlei"—Schwegler); for it will be the Essence of each particular animal, of whom it will be predicated essentially and not accidentally (οὐ γὰρ κατ' ἄλλο λέγεται—i. e., this is not a case where the predicate is something distinct from the subject). Moreover all the constituents of man will be alike Ideas (e. g., not merely ζῶν, but δέκον): now the same cannot be Idea of one thing and Essence of another; accordingly, αὐτοζῶν will be each

one of the essential constituents of particular animals (*δίπουν*, *πολύπουν*, b. 14).

Again, whence comes *αὐτοζῶον* itself, and how do the particular animals arise out of it? How can the *ζῶον* which is Essence, exist apart from and alongside of *αὐτὸ τὸ ζῶον*? (p. 1039, b. 15.)

These arguments show how impossible it is that there can exist any such Ideas as some philosophers affirm (p. 1039, b. 18).

We have already said that there are two varieties of Essence: (1) The Form alone, (2) The Form embodied in Matter. The Form or Essence in the first meaning, is neither generable nor destructible; in the second meaning it is both. *Τὸ οὐκία εἶναι* is neither generable nor destructible; *τὸ τῆδε τῇ οὐκία εἶναι* is both the one and the other (p. 1039, b. 25). Of these last, therefore, the perceivable or concrete Essences, there can be no definition nor demonstration, because they are implicated with Matter, which is noway necessary, or unchangeable, but may exist or not exist, change or not change. Demonstration belongs only to what is necessary; Definition only to Science, which cannot be to-day Science and to-morrow Ignorance. Neither Science, nor Demonstration, nor Definition, applies to such things as may be otherwise: these latter belong to Opinion (*τοῦ ἐνδεχομένου ἄλλως εἶχειν*—p. 1040, a. 1). You cannot have Science or Demonstration or Definition about particular or perceivable things, because they are destroyed and pass out of perception, so that you do not know what continues to be true about them; even though you preserve the definition in your memory, you cannot tell how far it continues applicable to them (a. 7). Any definition given is liable to be overthrown.

Upon the same principle, there cannot be any definition of the Platonic Ideas; each of which is announced as a particular, distinct, separable, Ens (p. 1040, a. 8). The definition must be composed of words—of the words of a language generally understood—and of words which, being used by many persons, are applicable to other particulars besides the definiend (you define Alexander as white, thin, a philosopher, a native of Aphrodisias &c., all of which are characteristics applicable to many other persons besides). The definer may say that each characteristic taken separately will apply to many things, but that the aggregate of all together will apply to none except the definiend. We reply however, that *ζῶον δίπουν* must have at least two subjects to which it applies—*τὸ ζῶον* and *τὸ δίπουν*. Of course this is all the more evident about eternal Entia like the Platonic Ideas, which are prior to the compound and parts thereof (*ζῶον* and *δίπουν* are each prior and both of them parts of *αὐτοάνθρωπος*), and separable, just as *αὐτοάνθρωπος* is separable (a. 14—

20); for either neither of them is separable, or both are so. If neither of them is separable, then the Genus is nothing apart from the Species, and the Platonic assumption of self-existent Ideas falls to the ground; if both are separable, then the Differentia is self-existent as well as the Genus (a. 21): there exist some Ideas prior to other Ideas. Moreover, the Genus and Differentia, the component elements of the Species, are logically prior to the Species: suppress the Species, and you do not suppress its component elements; suppress these, and you *do* suppress the Species (a. 21). We reply farther that, if the more compound Ideas arise out of the less compound, the component elements (like ζῶον διπουν) must needs be predicable of many distinct subjects. If this be not so always, how are we to distinguish the cases in which it is true from those in which it is not? You must assume the existence of some Idea which can only be predicated of some one subject, and no others. But this seems impossible. Every Idea is participable (a. 27).

These philosophers do not reflect that definition is impossible of eternal Essences (which the Platonic Ideas are), especially in cases where the objects are essentially unique, as Sun, or Moon, or Earth (p. 1040, a. 29). When they try to define Sun, they are forced to use phrases which are applicable to many in common; but Sun, (and each Idea) is particular and individual, like Kleon or Sokrates. Why does none of them produce a definition of an Idea? If any one tried, he would soon see the pertinence of the above remarks (b. 3). (Alexander, Bonitz, and Schwegler, all observe incidentally that the reasoning of what immediately precedes is weak and sophistical. Bonitz, p. 352, gives a good summary of the chapter, concluding: "Hoc capite non id ipsum demonstrat, res singulas non esse substantias, sed rerum singularum non esse definitionem neque scientiam; nimirum quum substantiae vel unice vel potissimum esse definitionem demonstratum sit, c. 4, hoc si comprobatur, illud simul est comprobatur.")

It is farther evident that many apparent Essences are not strictly and truly Essences; for example, the parts of animals; since not one of them is separated from the whole (οὐθὲν γὰρ κειρωρισμένον αὐτῶν ἐστίν—p. 1040, b. 6; Alexander says *ad loc.*: οὐσίας ἐκείνὰ φαμεν ὅσα καθ' αὐτὰ ὄντα δύναται τὸ οἰκείον ἔργον ἀποτελεῖν· οὐσία γὰρ οὐδὲν ἄλλο ἐστὶν ἢ τὸ ἀφ' οὗ τὸ ἐκάστου ἔργον ἐκπληροῦται· οὐσία γὰρ καὶ εἶδος Σωκράτους ἢ τοῦ Σωκράτους ψυχῇ, ἀφ' ἧς αὐτῷ τὸ τοῦ ἀνθρώπου ἢ ἀνθρώπος ἔργον ἐκπληροῦν). When any one of them is separated, it exists only in the character of Matter—earth, fire, air; none of them, in this separate condition, being an unity, but only like a heap of grains of gold

or tin before they are melted and combined into one. We might suppose, indeed, that the parts of the body, and the parts of the soul, of animated beings, come near to Essence, both one and the other, alike potentially and actually (b. 12), because they have principles of motion in their turnings (*καμπταίς*), so that in some cases they continue separately alive after division. Still the functions of the part alone must be really regarded as nothing more than potential, wherever the oneness and continuity of the whole is the work of Nature (b. 15), and not a mere case of contact or forcible conjunction.

Nevertheless the being One, or Unity (p. 1040, b. 16), is not itself the Essence of things. Unum is predicated in the same manner as Ens; the two may always be predicated together: the Essence of Unum is One; and things of which the Essence is Unum Numero, are themselves numerically one. Neither Unum nor Ens is the Essence of things any more than the being an Element, or the being a Principle, can be the Essence thereof: we have farther to enquire what the Principle is, in order to bring the problem into a more cognizable shape (b. 20). Unum and Ens are more near to Essence than either Element, Principle, or Cause; nevertheless neither Unum nor Ens is Essence; for nothing which is common to many things is Essence. Essence belongs only to itself and to that which has itself. Farther, Unum cannot be in many places at once; but that which is common is in many places at once. It is thus plain that nothing Universal exists apart or separate from particulars (b. 27).

The advocates of the (Platonic) Ideas are right in affirming them to be separate, if they be Essences; but they are wrong in calling that which is predicable of many things (the Universal) an Idea (p. 1040, b. 29). When asked, What are these indestructible Essences of which you speak, as apart from the visible individual objects?—they had no intelligible answer to give. Accordingly they were forced to make these Essences the same specifically with the destructible (individual) objects; for *these* we do know (b. 33). They simply prefixed the word *αὐτό* to the names of sensible objects—*αὐτοάνθρωπος*, *αὐτόῖππος*. But these Ideas might still exist, even though we knew not what they were; just as eternal Essences like the stars would still exist, even though we had never seen them (p. 1041, a. 2).

Let us again examine what we call Essence, and what sort of thing it is; and let us take another point of departure, which may perhaps help us to understand what that Essence is which is apart and separate from perceivable Essences (p. 1041, a. 9). We know

that Essence is a certain variety of Principle or Cause; and from this premiss we will reason (a. 10). Now the enquiry into Cause, or the Why, always comes in this shape: Why does one thing belong to another? The enquiry, Why a thing is itself? is idle. The fact—the *ὅτι*—must be assumed to be clear and known in the first instance. You know that the moon is eclipsed, as matter of fact; you proceed to enquire into the cause thereof (a. 11–24). Why does it thunder? or, to enunciate the same question more fully, Why is there noise in the clouds? The *quæsitum* is always one thing predicated of another (a. 26). Why are these materials, bricks and stones, a house? Here the answer sought is, the Cause; and that is the *τ.η.ε.*, speaking in logical or analytical phraseology (*λογικῶς*—i. e., that which belongs to the *λόγος τῆς οὐσίας*). In some cases, this *quæsitum* is a Final Cause, as in the case of a bed or a house; in others, an Efficient or Movent Cause; for that also is a variety of Cause, generally sought for in regard to things generated or destroyed; but the other (viz., τὸ *τ.η.ε.*, “*ipsa rei forma ac notio, aut concepta in animo artificis, aut inclusa in ipsâ naturâ ac semine rei*”—Bonitz, Comm. p. 359) is sought for in regard to *εἶναι*.

The true nature of the *quæsitum* is often unperceived, when the problem is announced without stating distinctly the subject and predicate in their mutual relations (*ἐν τοῖς μὴ καταλλήλως λεγομένοις*, p. 1041, a. 33). For example, *ἄνθρωπος διὰ τί ἐστίν*; is ambiguous by imperfect enunciation. As it stands, it might be supposed to be intended as *ἄνθρωπος διὰ τί ἐστίν ἄνθρωπος*; which would be a question idle or null. To make it clear, you ought to distinguish the two members to which the real *quæsitum* refers (b. 2), and say *διὰ τί τὰδε ἢ τόδε ἐστίν ἄνθρωπος*; your real enquiry is about the *ἕλη* or Matter, why it exists in this or that manner. Why are these materials a house? Because the Essence of a house belongs to them (b. 6). Some *τ.η.ε.*, some sort of *εἶναι*, must belong to the Matter (b. 4). Why is this Matter a man? or why is the body disposed in this particular way a man? Here we enquire as to the Cause which acts upon a certain Matter; and that is the Form whereby the thing is; which again is the Essence (b. 8).

Hence it is plain that a distinction must be taken between the Simple and the Compound. The enquiry above described, and the teaching above described, cannot apply to the Simple, which must be investigated in another way (p. 1041, b. 9). Compounds are of two sorts—aggregates like a *heap* (mechanical), and aggregates like a *syllable* (organic or formal). In these last there are not merely the constituent elements, but something else besides (b. 16). The

syllable *ba* is something more than the letters *b* and *a*; flesh is something more than fire and earth, its constituent elements. Now this *something more* cannot be itself a constituent element; for, if that were so, flesh would be composed of three constituent elements instead of two, and we should still have to search for the *something beyond*, and this ulterior process might be repeated *ad infinitum* (b. 22). Nor can the *something beyond* be itself a compound of several elements, for we should still have to find the independent something which binds these into a compound. It is plain that this *something beyond* must be in its nature quite distinct from an element, and must be the cause why one compound is flesh, another compound a syllable, and so about all the remaining compounds. Now this is the Essence of each compound—the First Cause of existence to each (b. 25). The Element (*στοιχείον*) is that into which the compound is separated, as included Matter (*ἐνυπάρχον ὡς ὕλην*): *b* and *a*, in the syllable *ba* (b. 32). There are some things which are not the Essences of objects (white, for example, is not of the Essence of man, but an attribute); but, in all cases where compounds have come together according to Nature and by natural process, that Nature also which is not Element but Principle is the Essence (b. 28: *ἐπεὶ δ' ἅνια οὐκ οὐσίαι τῶν πραγμάτων, ἀλλ' ὅσαι οὐσίαι κατὰ φύσιν καὶ φύσει συνεστήκασιν, φανείη ἂν καὶ αὕτη ἡ φύσις οὐσία, ἣ ἐστὶν οὐ στοιχείον ἀλλ' ἀρχή*). Schwegler in his note, p. 135, proposes to correct this passage by striking out *καὶ* before the words *αὕτη ἡ φύσις οὐσία*. But, if this were done, it would make the passage mean that *ὕλη* or *στοιχείον* is not *οὐσία*, and that the other *φύσις* which is not *στοιχείον*, is to be regarded exclusively as *οὐσία*. Now this is certainly not the doctrine of Aristotle, who expressly declares *ὕλη* to be *οὐσία*; see H, p. 1042, a. 32. Retaining the *καὶ*, the passage will then mean that not merely *ὕλη*, but *ἅλα φύσις* which is not *ὕλη*, is *οὐσία*).

BOOK H.

IN this Book, Aristotle begins by recapitulating the doctrines and discussions of the preceding. His purpose had been declared to be the investigation of the Causes, Principles, and Elements of Essences. Now Essences are diverse: some universally admitted, as the natural elements and simple bodies, also plants, animals, and the parts of each, lastly, the heaven and the parts thereof; others not universally admitted, but advocated by some philosophers, as the Ideas and Mathematical Entia; others, again, which we arrive

at by dialectical discussion, as τὸ τ.η.ε., the Substratum (Logical Entia—ἐκ τῶν λόγων, p. 1042, a. 12), the Genus more Essence than the Species, the Universal more Essence than Particulars. The (Platonic) Ideas make a near approach to the Genus and the Universal; they are vindicated as Essences upon similar grounds. Next, since τὸ τ.η.ε. is Essence, and since the Definition is the rational explanation of τ.η.ε., we found it necessary to discuss Definition; and, since the Definition is a sentence having parts, we were called upon to examine these parts, and to explain what parts belonged both to Essence and to Definition. We decided farther, after discussion, that the Universal and the Genus were not Essence; the Platonic Ideas and the Mathematical Entia we postponed for the moment, and we confined ourselves to the perceivable Essences, recognized by all (a. 25).

Now all these perceivable Essentiæ include Matter. The Substratum—Matter in one way—is Essence; while, in another way, the Form and the λόγος is Essence; and finally the Compound of the two is Essence. Matter is Hoc Aliquid, not ἐνέργεια but only δυνάμει. Form is an Hoc Aliquid separable by reason (τῷ λόγῳ χωριστόν, p. 1042, a. 29). The Compound of the two, the complete Hoc Aliquid, is capable of existing separably, in an absolute sense (which is true also of some Forms), and is liable alone to generation and destruction (a. 30).

It is clear that Matter also, not less than Form, is Essence; for in all changes from opposite to opposite, there is a certain substratum to such changes. Thus, in changes of Place, there is a substratum which is now here, presently there; in changes of Quantity, what is now of such and such a size, is presently greater or less; in changes of Quality, what is now healthy is presently sick; in changes of Essence, what is now in course of generation is presently in course of destruction, or what is now the substratum of some given Form (and is thus Hoc Aliquid) is presently the substratum of Privation, and thus no longer Hoc Aliquid. Among these four varieties of change (κατ' οὐσίαν, κατὰ ποσόν, κατὰ ποιόν, κατὰ τόπον) the three last are consequent upon the first, but the first is not consequent upon all the three last; for we cannot maintain that, because a thing has Matter capable of local movement, it must therefore have generable and destructible Matter (p. 1042, b. 6).

Having discussed the Essence of perceivable things so far forth as *potential*, we now proceed to the same Essence so far forth as *actual* (ἡ δυνάμει οὐσία—ἡ ὡς ἐνέργεια οὐσία τῶν αἰσθητῶν—p. 1042, b. 10). What is this last? Demokritus recognizes a primordial body one and the same as to Matter, but having three differences—

in figure, in position, in arrangement. But it is plain that this enumeration is not sufficient and that there are many other differences, to each of which corresponds a special acceptance of *ἔστι* (*τὸ ἔστι τοσαυτῶς λέγεται*—b. 26). Some differences depend upon the mode of putting together constituent materials (*συνθέσει τῆς ὕλης*—b. 16), as mixture, tying, gluing, pegging, &c.; some upon position, as threshold, coping, &c.; some upon time; some upon place; some upon affections of perceivable things, such as hardness, softness, dryness, moisture, density, rarity, &c.; some upon combinations of the foregoing; some again simply upon excess or defect in quantity. To one or other of these, *ἔστιν* has reference in each particular case. We say—This is a threshold, because it lies in a particular manner: *Is* (or *To be*—*τὸ εἶναι*) signifies in this case that particular manner of lying. To be ice, is to have become solidified in this particular manner (b. 28). We must therefore look for the summa genera of the differences; in some cases *τὸ εἶναι* will be defined by all these differences: thus more or less dense, more or less rare, belong to the genus excess and defect; differences of figure, smoothness, roughness, &c., belong to the genus straight and curve; in other cases, to be, or not to be, will depend upon mixture, as the genus (p. 1043, a. 1).

If then the Essence is the cause why each thing is what it is, we must seek in these differences the cause why each thing is what it is (p. 1043, a. 3). None of these differences indeed is itself Essence,—not even when it is embodied or combined with Matter; but it is in each the analogue of Essence, and must be employed in defining, just as in real and true Essence we define by predicating of Matter the Actuality or Formality (*ὡς ἐν ταῖς οὐσίαις τὸ τῆς ὕλης κατηγορούμενον αὐτῇ ἢ ἐνέργεια*—a. 6). Thus, if we define a threshold, we say—a piece of wood or stone lying in this particular way; if we define ice, we say—water frozen or solidified in this particular way, &c. The Form or Actuality of one Matter is different from that of another; so also is the rational explanation or Definition; in some cases it is composition, in others mixture, &c., and so forth. If any one defines a house by saying that it is stone or brick, he indicates only the potential house, for these are the Matter (a. 15); if he defines it—a vessel protecting bodies or property, he then assigns the Actuality (*ἐνέργειαν*); if he includes both of the above in his definition, he then gives the third Essence completed out of the two together (*τὴν τρίτην καὶ τὴν ἐκ τούτων οὐσίαν*—a. 18). To define from the differences, is to define from the side of the Actuality or Form; to define from the included elements (*ἐκ τῶν ἐνυπαρχόντων*) is to define from the side of the Matter (a. 20).

We see herefrom what perceivable Essence is, and how it is:

partly, of the nature of Matter; partly, of Form and Actuality or Energy: again, the third or Concrete, out of both combined (p. 1043, a. 28). Sometimes, it is not clear whether the name signifies this third Concrete, or the Form and Energy. Thus, when you say a house, do you mean a protective receptacle built of bricks? or do you mean simply a protective receptacle—the Form simply, without specifying the Matter? When you say a line, do you mean a dyad in length—Form in Matter? or simply a dyad—Form alone? When you talk of an animal, do you mean soul in body? or simply soul, which is the Essence and Actuality of a certain body? The word animal may be applied to both, not indeed univocally, as implying generic resemblance, but (quasi-univocally, or semi-univocally) by analogical relationship to a common term (*οὐχ ὡς ἐνὶ λόγῳ λεγόμενον, ἀλλ' ὡς πρὸς ἔν*—a. 36). This distinction however, though important in some respects, is unimportant so far as regards the investigation about perceivable Essence; for the τ.η.ε. belongs to the Form and the Actuality (a. 38). Soul, and the being soul, are identical; but man, and the being man, are not identical; unless the soul be called man. Thus this identity exists in some cases, but not in others (b. 4). A syllable is not composed merely of letters and synthesis, nor is a house simply of bricks and synthesis; for the synthesis or the mixture does not proceed out of the elements which are put together or mixed (b. 8). The like is true in other cases; e.g., if the threshold is a threshold by position, the position does not proceed out of the threshold, but rather the threshold out of the position. Nor again is man simply animal and biped. If these two are the Matter, there must be something apart from and beyond them, something not itself an element nor proceeding out of an element—the Essence; which is indicated by abstracting from the Matter (b. 13). This, as being the Cause of Existence and of Essence (*αἴτιον τοῦ εἶναι καὶ τῆς οὐσίας*—b. 14) is what is meant when Essence is spoken of.

This Essence or Form must be eternal; or at least, if destructible, it has never been destroyed; if generable, it has never been generated. For we have shown already that no one either constructs or generates Form: the Hoc Aliquid is constructed; the product of Form and Matter is generated (p. 1043, b. 18). As yet it has not been made clear whether the Essences of destructible things are separable or not: in some cases at least, they certainly are not—in those cases, namely, where there can exist nothing beyond the particular things, as a house or an implement (b. 21). Perhaps, indeed, these are not truly Essences—neither these particular things nor any other things which have come together not by natural process; for we might indicate Nature alone as the Essence in destruc-

tible things (τὴν γὰρ φύσιν μόνην ἂν τις θείη τὴν ἐν τοῖς φθαρτοῖς οὐσίαν—b. 23. Aristotle seems to say in what precedes, that there is no γένεσις or φθορά of οὐσία; see Z. p. 1033, b. 17. But how is this to be reconciled with K. p. 1060, b. 18: οὐσίας μὲν γὰρ πάσης γένεσις ἐστίν, στιγμῆς δ' οὐκ ἔστιν? See Schwegler's Comm. explaining γιγνόμενον and φθειρόμενον, Pt. II. pp. 82, 83).

Hence we see that the difficulty started by Antisthenes and others equally unschooled (ἀπαίδευτοι) is not without pertinence. They say that, as a definition is a sentence of many words, predicating something of something, so you cannot define *Quid est*: you can only define and inform persons *Quale Quid est*: you can only tell people what the definiend is like, not what it is in itself: you can tell them that silver is like tin, but you cannot tell what silver is. Upon this theory, definition may be given of Compound Essence, whether perceivable or cogitable; but not of the *primordia* of which the compound consists. The definition must predicate a something, which is of the nature of Form, of another something, which is of the nature of Matter (p. 1043, b. 31).

If Essences are (as the Platonists say) in a certain sense Numbers, they are so in *this* sense; not (as these philosophers affirm) in the character of assemblages of Monads. For the definition is a sort of number, divisible into indivisible units; and the number is so likewise. If you add any thing to, or deduct any thing from, a number (let the thing added or deducted be never so small), it will be no longer the same number; in like manner, neither the definition nor the τ.η.ε., will be the same, if any thing be added or subtracted (p. 1044, a. 1). Each number must have something which makes its component units coalesce into one number, though the Platonic philosophers cannot tell what that something is; either the units are a mere (uncemented) heap, or else you must say what is that something which makes them *one* out of many (a. 5). The definition also is one; yet these philosophers cannot explain what makes it one. The units of the number and that of the definition, is to be explained in the same way, and that of the Essence also; not as a monad or a point, but in each case like an Entelechy and a peculiar nature (οὐχ, ὡς λέγουσί τινες, οἷον μονάς τις οὐσα ἢ στιγμή, ἀλλ' ἐντελέχεια καὶ φύσις τις ἐκάστη—a. 9). A given number admits of no degrees, more or less; neither does a given Essence, unless it be taken embodied in Matter (a. 10).

Respecting the Material Essence (περὶ δὲ τῆς ὑλικῆς οὐσίας—p. 1044, a. 15), we must not forget that, if there be one and the same First Matter common as a principle to all Generata or Fientia, there is nevertheless a certain Matter special or peculiar

(proximate) to each (*ὁμοῦς ἔστι τις οἰκεία ἐκάστων*—a. 18; *οἰκεία καὶ προσεχῆς*—Alexander). Thus the *Materia Prima* of phlegm is, sweet or fat things; that of bile is, bitter things and such like. Perhaps these two come both from the same Matter; and there are several different Matters of the same product, in cases where one Matter proceeds from another. Thus phlegm proceeds from fat and sweet, if fat proceeds from sweet; and even from bile, if bile be analysed into its First Matter from whence phlegm may proceed by a different road (a. 23). One thing may proceed from another in two different ways: either D may proceed from C, because C is its immediate Matter, already preformed up to a certain point, and thus on the way to a perfectly formed state; or D may proceed from C, after the destruction of C and the resolution of C into its *Materia Prima* (*διχῶς γὰρ τόδ' ἐκ τοῦδε, ἢ ὅτι πρὸ ὁδοῦ ἔσται ἢ ὅτι ἀναλυθέντος εἰς τὴν ἀρχήν*—a. 24). From one and the same Matter different products may proceed, if the moving cause be different: from the same wood there may proceed a box or a bed. What product shall emerge does not, however, depend only upon the Moving Cause, but often upon the Matter also; thus a saw cannot be made out of wool or wood. If the same product can proceed out of different Matter, this is evidently because the Art or Moving Cause is the same: if this last be different, and the Matter different also, the product will of course be different (p. 1044, a. 32).

When a man asks us, What is the Cause? we ought to reply, since the word has many senses, by specifying all the causes which can have a bearing on the case (p. 1044, a. 34). Thus, What is the Cause of man, as Matter? Perhaps the *katamenia*. What, as *Movent*? Perhaps the seed. What, as Form? The *τ.η.ε.* What, as *οὐ ἔνεκα*? The End. These two last are perhaps both the same (a. 36). Moreover we ought to make answer by specifying the proximate causes (not the remote and ultimate). Thus, What is the Matter of man? We must answer by specifying the proximate matter; not fire and earth, the ultimate and elemental (b. 2).

This is the only right way of proceeding in regard to *Essences* natural and generable; since the Causes are many, and are what we seek to know. But the case is different in regard to *Essences* natural, yet eternal. Some of these last perhaps have no Matter at all; or at least a different Matter, having no attribute except local movability (b. 8). Alexander says in explanation: *λέγει δὲ τὴν ξύμπασαν τῶν ὀκτῶ σφαιρῶν ἐνάδα—ἔλην οὐ γεννητὴν καὶ φθαρτὴν ἀλλὰ μόνον κατὰ τόπον κινήτην*—p. 527, 20–25, Bon.).

Again, in regard to circumstances which occur by Nature, but not in the way of Essence, there is no Matter at all: the subject

itself is the Essence. Thus in regard to an eclipse: What is its Cause? What is its Matter? There is no Matter, except the moon which is affected in a certain way. What is the Cause, as Movent—here light-destroying? The earth. Perhaps there is no οὐ ἔνεκα in the case. But the Cause in the way of Form is the rational explanation or definition; and this must include a specification of the Movent Cause, otherwise it will be obscure. Thus, the eclipse is, privation of light; and, when you add—by the earth intervening, you then specify the Movent, and make your definition satisfactory (b. 15).

In defining sleep we ought to say what part of the system is first affected thereby; but this is not clear. Shall we indicate only the animal (as substratum)? But this is not enough. We shall be asked, What part of the animal? Which part first? The heart, or what other part? Next, by what Cause? Lastly, how is the heart affected, apart from the rest of the system? To say—Sleep is a certain sort of immobility, will not be a sufficient definition. We must specify from what primary affection such immobility arises (p. 1044, b. 20).

Since some things exist, and do not exist, without generation or destruction (as Forms, and Points, if there be such things as Points), it is impossible that all Contraries can be generated out of each other, if every generation be both *aliquid* and *ex aliquo*. *Albus homo ex nigro homine* must be generated in a different way from *album ex nigro*. Now Matter is only to be found in those cases where there is generation and change into each other; in other cases, where no change takes place, there is no Matter. There is a difficulty in understanding how the Matter of each substance stands in regard to the contrary modifications of that substance (p. 1044, b. 29). If the body is potentially healthy, and if disease is the contrary of health, are we to say that both these states are potential? Is water potentially both wine and vinegar? Or are we to say rather that the body is the Matter of health, and that water is the Matter of wine, in the way of acquisition by nature and by taking on the Form to which it tends; and that the body is the Matter of sickness, and wine the Matter of vinegar in the way of privation and of destruction contrary to nature (b. 34)? However, there is here some difficulty: Since vinegar is generated out of wine, why is not wine the Matter of vinegar, and potentially vinegar? Why is not the living man potentially a corpse? Is it not rather the truth, however, that these are accidental or contra-natural destructions (κατὰ συμβεβηκὸς αἱ φθοραί—b. 36, i.e., not in the regular appetency and aspirations, according to which the destruction of

one Form gives place to a better); and that through such destruction the same Matter which belonged to the living man becomes afterwards the Matter of the corpse; likewise the Matter of wine becomes, through the like destruction, Matter of vinegar—by a generation like that of night out of day? Changes of this sort must take place by complete resolution into the original *Materia Prima* (εἰς τὴν ὕλην δεῖ ἐπαγελθεῖν—a. 3); thus, if a living animal comes out of a dead one, the latter is first resolved into its elements, and then out of them comes the living animal. So vinegar is first resolved into water, then out of the water comes wine (a. 5).

We shall now revert to the difficulty recently noticed, about Definitions and Numbers. What is the cause that each number and each definition is One? In all cases where there are several parts not put together as a mere heap, but where there is a Whole besides the parts, there must be some cause of this kind. With some bodies, contact is such cause; with others, viscosity (γλισχρότης—p. 1045, a. 12), or some other affection. But the definition is one complex phrase, not by conjunction like the *Iliad*, but One by being the definition of one subject (a. 14). Now what is it which makes the subject man, One? Why is he One and not Many, say animal and a biped—more especially if there exist, as the Platonists say, a Self-animal and a Self-biped? Why are not these two αὐτὰ the man (διὰ τί γὰρ οὐκ ἐκείνα αὐτὰ ὁ ἀνθρώπος ἐστι;—a. 17), so that individuals are men by participation not of one Self-man, but of the two—Self-animal, Self-biped? On this theory altogether, it would seem that a man cannot be One, but must be Many—animal and biped. It is plain that in this way of investigation the problem is insoluble.

But if, as we say (p. 1045, a. 23), there be on one side Matter, on the other side Form—on one side that which is in Potency, on the other side that which is in Act (a. 24)—the problem ceases to be difficult. The difficulty is the same as it would be if the definition of *himation* were, round brass: the word *himation* would be the sign of that definition, and the problem would be, What is the Cause why round and brass are One? But the difficulty vanishes, when we reply that one is Matter, the other Form. And, in cases where generation intervenes, what is the Cause why the potential Ens is actual Ens, except the Efficient (παρὰ τὸ ποιῆσαν—a. 31)? There is no other Cause why the sphere in potency is a sphere in actuality: such was the τ.η.ε. of each (τοῦτ' ἦν τὸ τ.η.ε. ἐκατέρωφ—a. 33). Of Matter there are two varieties, the Cogitable and the Perceivable; and, in the Definition, a part is always Matter, a part is Form or

Energy; as when we define the circle—a plane figure. (Aristotle argues:—On the Platonic theory that Ideas or Forms are Entia, separate from particulars, self-existent, and independent of each other, no cause can be assigned for the coalescence of any two or more of them into one; *e.g.* animal and biped, into man. But upon my theory, Form and Matter, Power and Act, are in their own nature relative to each other. It is their own inherent nature to coalesce into one, or for Power to pass into Act. This is the cause of their unity: no other cause can be found or is necessary. See Alexander, p. 531.)

In those cases where there is no Matter, either cogitable or perceivable, as in the Categories, Hoc Aliquid, Quale, Quantum, &c., each of them is, in itself and at once, both Ens and Unum (p. 1045, b. 2). Hence neither Ens nor Unum is included in the Definitions, and the τ.η.ε. is, in itself and at once, both Ens and Unum. No other cause can be assigned why each of these is Ens and Unum; each of them is so, at once and immediately; yet not as if they were all included in Ens or Unum as common genera; nor as if they were apart and separable from particulars (b. 7).

Philosophers, who do not adopt this opinion, resort to various phrases, all unsatisfactory, to explain the coalescence or unity of the elements included in the Definition. Some call it μέθεξις, but they give no cause of the μέθεξις; others συνουσία, or σύνδεσμος, or σύνθεσις—of soul with body, as definition of life. But we might just as well use these phrases on other occasions, and say that to be well was a synthesis of the soul with health; that the brazen triangle was a σύνδεσμος of brass with triangle; that white was a synthesis of superficies with whiteness (p. 1045, b. 15). These phrases carry no explanation; and these philosophers get into the difficulty by taking a wrong point of departure. They first lay down Power as different from Entelechy, and then look for an explanation which makes them one (αἴτιον δ' ὅτι δυνάμει καὶ ἐντελεχείᾳ ζητοῦσι λόγον ἐνοποιὸν καὶ διαφοράν—p. 1045, b. 16. Schwegler observes that the two last words are loosely put, and that the clear words to express what Aristotle means would be: ζητοῦσι λόγον ἐνοποιὸν ὑποτιθέντες διαφοράν—Comm. II. p. 154.). But the truth is that Power and Entelechy are not essentially two, but only different aspects of one and the same. The Last Matter and the Form are the same; but the first is in potency, the second in perfect actuality (“Stoff und Form, Potenzielles und Actuelles, sind eins und dasselbe auf verschiedenen Entwicklungsstufen”—Schwegler II. p. 151). To enquire in any particular case what is the cause of this One, is the same as to enquire generally the cause of Unity. Each thing is a certain One: the Poten-

tial and the Actual are One, in a certain way (b. 20). So that no other Cause can be found except the Movent or Efficient—that which moved the matter out of Potency into Actuality. As to those things which have no Matter, each of them is One immediately and *per se* (b. 23).

BOOK Θ.

IN discriminating the meanings of Ens, we noticed one *κατὰ δύναμιν καὶ ἐνέργειαν* (apart from Ens according to the Categories). We shall now proceed to discuss these two terms *δύναμις* and *ἐντελέχεια* = *ἐνέργεια* (p. 1045, b. 35).

It is elsewhere mentioned (Δ. p. 1019) that *δύναμις* has many senses, of which some (like the geometrical, &c.) are equivocal or metaphorical, so that we shall pass them over here (p. 1046, a. 6). But there is one first and proper sense of *δύναμις*, from which many others diverge in different directions of relationship or analogy (a. 10). That first and proper sense is—a principle of change *in alio vel quatenus aliud*, or a principle of change *ab alio vel quatenus aliud* (*ἀρχὴ μεταβολῆς ἐν ἄλλῳ ἢ ᾧ ἄλλο—ἀρχὴ μεταβολῆς ὑπ' ἄλλου ἢ ᾧ ἄλλο*—a. 11, 14. The same definition is given in terms somewhat different at p. 1048, a. 28: *τοῦτο λέγομεν δυνατόν ὃ πέφυκε κινεῖν ἄλλο ἢ κινεῖσθαι ὑπ' ἄλλου, ἢ ἀπλῶς ἢ τρόπον τινά*. This Aristotle calls *ἡ κατὰ κίνησιν δύναμις*—expressed by Bonitz, Comm., p. 379: “*agendi patiendive nisum quendam*.”). The notion of *δύναμις* however extends more widely than this first sense of *δύναμις κατὰ κίνησιν*. It includes other cases, as where we say that Hermes is *δυνάμει* in the wood, and that the half foot is *δυνάμει* in the whole foot (p. 1048, a. 33; Bonitz distinguishes this last sense as *Möglichkeit*, from the first sense as *Vermögen*, p. 379).

We begin by speaking about the first and proper sense—*δύναμις ἡ κατὰ κίνησιν*. One variety thereof is, when a thing has power of being passively affected so and so—when there resides in the thing a principle of passive change (*ἀρχὴ μεταβολῆς παθητικῆς*—p. 1046, a. 13) by something else or by itself *quatenus* something else. (These last words are added because a sick man has the *δύναμις* of being cured either by a physician, or by himself if he be a physician; but then in this last case he is to be looked upon in two different characters, as physician and as patient: he cures himself as physician, he is cured as patient.) Another variety of *δύναμις κατὰ κίνησιν* is, when a thing has power of resisting change for the worse or destruction by any exterior principle of change (a. 14); as hardness in iron. Sometimes this *δύναμις* is restricted to the cases in which a

person can do the thing in question well: no man is said to have the power of speaking or singing unless he can perform these functions pretty well (a. 18).

In all these varieties, the general notion of *δύναμις κατὰ κίνησιν* is included (p. 1046, a. 16). The active and passive *δύναμις* are, in one sense, one and the same; in another sense, distinct and different. For one of them resides in the patient, the other in the agent (a. 27): sometimes the two come by nature together in the same thing; yet the patient does not suffer from itself as patient, but from itself as agent. Impotence (*ἀδυναμία*) is the privation contrary to this *δύναμις*. Privation has many different meanings (a. 32).

Among these principles of change, some reside in the inanimate substances, others in the animated; not only in the soul generally, but also in the rational branch of the soul (p. 1046, a. 38). Accordingly some *δυνάμεις* are Rational, others Irrational. All arts and constructive sciences are *δυνάμεις* (or *ἀρχαὶ μεταβλητικαὶ ἐν ἄλλῃ ἢ ἡ ἄλλο*—b. 3). In the rational capacities, the same capacity covers both contraries; in the irrational, each bears upon one of the two contraries exclusively; thus, fire will only heat but not chill, while the medical art will produce either sickness or health. The reason is, that Science is based upon rational explanations or definitions; and the same rational explanation declares both the thing itself and the privation thereof; though not indeed in the same manner: it declares, in a certain way, both together, and, in a certain way, chiefly the positive side (b. 10). Accordingly these sciences are sciences of both the contraries at once: namely, *per se*, of one side of the Antiphrasis; not *per se*, of the other side; since the rational explanation also declares, directly and *per se*, only one side, while it declares the other side in a certain way indirectly, mediately, *per accidens*—i.e., by negation and exclusion (*ἀποφάσει καὶ ἀποφορᾷ*—b. 14). For the Contrary is the highest grade of privation; and this is the exclusion of one side of the alternative (*ἡ γὰρ στέρησις ἡ πρώτη τὸ ἐναντίον, αὕτη δ' ἀποφορὰ θατέρου*—p. 1046 b. 15; Bonitz says that τὸ ἐναντίον is the subject of this proposition, and ἡ στέρησις the predicate). Both of two contraries cannot reside, indeed, in the same subject; but Science is a *δύναμις* through rational explanation or reason in the soul which has within it a principle of motion; accordingly the soul can bring to pass either of the two contraries, through reference to the same rational notion or explanation which comprises both (b. 22).

The Megaric philosophers recognize no *δύναμις* apart from *ἐνέργεια*; affirming that no one has any power, except at the moment when he is actually exercising it. These philosophers are wrong

(for various reasons indicated: p. 1046, b. 30—p. 1047, a. 20). Power and Act are distinct. A particular event is possible to happen, yet it does not happen; or possible not to happen, yet it does happen (p. 1047, a. 22). That is possible, to which, if the act supervene whereunto such possibility relates, nothing impossible will ensue (a. 25). The name *ἐνέργεια*, appended to that of *ἐντελέχεια* (ἡ πρὸς τὴν ἐντελέχειαν συντιθεμένη—a. 30), has come to be applied to other things chiefly from reference to motions; for motion is *par excellence* *ἐνέργεια*. Hence Non-Entia are never said to be moved, though other predicates may be applied to them: we may call them *διανοητά* and *ἐπιθυμητά*, but never *κινούμενα*; for, if we did, we should be guilty of contradiction, saying that things which are not *ἐνεργεία* are *ἐνεργεία*. Among the Non-Entia there are some which are Entia *δυνάμει*: we call them Non-Entia, because they are not *ἐντελεχεία* (b. 2).

If the definition above given of *τὸ δυνατόν* be admitted, we see plainly that no one can say truly: This is possible, yet it will never happen (p. 1047, b. 3, seq.).

Among all the various *δυνάμεις*, some are congenital, such as the perceptive powers (*αἰσθήσεων*—p. 1047, b. 31); others are acquired by practice, such as playing the flute; others by learning, like the arts: these two last varieties we cannot possess without having previously exercised ourselves in them actively (b. 34), but the others, which are more of a passive character, we may possess without such condition. This distinction coincides with that which was drawn previously between the rational and the irrational *δυνάμεις* or capacities: the rational capacities belonging only to a soul, and to the rational branch thereof. Now every *δυνατόν* has its own specialities and conditions: it is itself a given something, and it is surrounded with concomitants of special time, place, neighbourhood, &c. (p. 1048, a. 1). The irrational capacities must necessarily pass into reality, whenever the active and the passive conditions come together, because there is but one reality to arise; but the rational capacities not necessarily, because they tend to either one of two contrary realities, both of which cannot be produced. Which of the two contraries shall be brought to reality, will depend upon another authority—the appetency or deliberate resolution of the soul: to whichever of the two, each possible, such sovereign appetency tends, that one will be brought to pass, when agent and patient come together and both are in suitable condition (a. 11); and under those circumstances, it will *necessarily* (*ἀνάγκη*—a. 14) be brought to pass. We need not formally enunciate the clause—"if nothing extrinsic occurs to prevent it": for this is

already implied in the definition of *δύναμις* which is never affirmed as absolute and unconditional, but always under certain given conditions (a. 18: ἔστι δ' οὐ πάντως, ἀλλ' ἐχόντων πῶς). Accordingly the agent will not be able to bring about both sides of the alternative at once, even though appetite or deliberate resolution may prompt him to do it (a. 21).

Having thus gone through the variety of *δύναμις* called *ἡ κατὰ κίνησιν*, we shall now give some explanations of *ἐνέργεια*; in the course of which we shall be able to illustrate by contrast, the other variety of *δύναμις*, which was indicated above (p. 1048, a. 30). *Ἐνέργεια* is used when the thing exists, not *δυνάμει*: meaning by *δυνάμει* such as Hermes in the wood or the half-yard in the whole yard. We shall explain our meaning, by giving an induction of particulars; for definition cannot be given of every thing. We must group into one view the analogies following (οὐ δὲ παντὸς ὄρον ζητεῖν, ἀλλὰ καὶ τὸ ἀνάλογον συνορᾶν—a. 37): As the person now actually building is to the professional builder not so engaged; as the animal awake is to the animal asleep; as the animal seeing is to the animal possessed of good eyes but having them closed; as that which is severed from matter is to matter (τὸ ἀποκεκριμένον—b. 3); as the work completed is to the material yet unworked;—so is *ἐνέργεια* to *δύναμις*. The antithesis is not similar in all these pairs of instances, but there is a relationship or analogy pervading all (ὡς τοῦτο ἐν τούτῳ ἢ πρὸς τοῦτο, τόδ' ἐν τῷδε ἢ πρὸς τόδε—b. 8). In some of the pairs, the antithesis is the same as that of *κίνησις* πρὸς *δύναμιν*; in others, it is the same as that of *οὐσία* πρὸς *τινα ὕλην* (b. 9). In one member of each pair, we have *ἡ ἐνέργεια ἀφωρισμένη*; in the other τὸ δυνατόν (b. 5—*ἐνέργεια* here is *reality severed and determinate*, as contrasted with *δύναμις potentiality huddled together and indeterminate*.—See Schwegler's note: "Potenzialität und Aktualität sind reine Verhältnissbegriffe"—p. 172, seq.). But in all the above-named examples, that which is now *δυνάμει* may come actually to be *ἐνέργεια*: the person now sleeping may awake; the person whose eyes are now closed may open them and see; the Hermes now in the wood may be brought out of the wood and exist as a real statue. It is otherwise with The Infinite, Vacuum, &c. These exist *δυνάμει* only, and can never come to exist *ἐνέργεια*, or independently. The Infinite can exist *ἐνέργεια* only for our cognition. The fact that the bisection thereof is never exhausted—that we may go on dividing as long as we choose—gives to the potential Infinite a certain actuality, though it cannot be truly separated (b. 16).

We must farther explain in what cases it is proper to say that a thing is *δυνάμει*, and in what cases it is not proper. You cannot

properly say that earth is potentially a man: you may perhaps say that the semen is potentially a man; yet even *this* not certainly, since other conditions besides semen are required (p. 1049, a. 2). The physician cannot cure every patient, yet neither is the cure altogether a matter of chance (ἀπὸ τύχης—a. 4): there is a certain measure of cure possible, and that is called τὸ ὑγιαῖνον δυνάμει. The definition thereof, taken from the side of the agent, would be—that which will come to pass if he wills it, without any impediment from without; from the side of the patient—when no impediment occurs from within him (a. 8). In like manner, a house exists δυνάμει, when all the matter for it is brought together, without need either of addition or subtraction or change, and when there is no internal impediment; and so with other products of art, where the principle of generation is extrinsic to themselves. In natural products, where the principle of generation is intrinsic, we treat them as potentially existing, when this principle is in a condition to realize itself through itself, assuming no external impediments to interfere. Thus we do not call the semen potentially a man, because, before it becomes such, it must undergo change in something else, and therefore stands in need of some other principle; we call it so only when it is in such conditions that its own principle suffices. Earth is not said to be a statue δυνάμει, until it has first been changed into brass (a. 17). We call the product not by the name of the Matter itself, but by an adjective appellation derived from the next adjacent Matter; thus we call a box, not wood, but wooden: wood is then a box δυνάμει. But we say this only of the proximate or immediate Matter, not of the remote or primary Matter. We must go back through successive stages to the first or most remote Matter; thus wood is not earth, but earthy: earth therefore is potentially wood. The earth may be aeriform; the air may be fiery; the fire has no analogous adjective whereby it can be called, and is thus the first or last Matter. But it is not said to be potentially any thing except the σύνθετον combined with Form immediately above it. Matter may be either proximate or remote: Potentiality is affirmed only of the proximate Matter.

Since all the different meanings of *Prius* have been enumerated and distinguished, it is plain that in all those meanings Actuality is *prius* as compared with Potentiality: whether the δύναμις be ἀρχὴ μεταβλητικὴ (= κινητικὴ) ἐν ἄλλῳ ἢ ἄλλο, like Art; or ἀρχὴ κινητικὴ ἢ στατικὴ ἐν αὐτῷ ἢ αὐτό, like Nature (p. 1049, b. 5–10). Actuality is *prius* both λόγῳ and οὐσίᾳ: it is also *prius* χρόνῳ in a certain sense, though not in a certain other sense.

It is *prius* λόγῳ, because the Actual is included in the definition of the Potential; that is, it must be presupposed and foreknown, before you can understand what the Potential is (p. 1049, b. 17). You explain οἰκοδομικός or ὀρατικός by saying that he is δυνάμενος οἰκοδομεῖν ἢ ὀρᾶν: you explain ὀρατόν by saying that it is δυνατόν ὀρᾶσθαι: τὸ δυνατόν, in its first and absolute meaning, is δυνατόν because it may come into Actuality (b. 13).

It is *prius* χρόνῳ in the sense that the Potential always presupposes an Actual identical *specie*, though not identical *numero*, with that Actual to which the Potential tends. Take a man now existing and now seeing, or corn now ripe in the field: these doubtless, before they came into their present condition, must have pre-existed in Potentiality; that is, there must have pre-existed a certain matter—seed or a something capable of vision—which at one time was not yet in a state of Actuality (p. 1049, b. 23). But prior to this matter there must have existed other Actualities, by which this matter was generated: the Actual is always generated out of its Potential by a prior Actual, *e.g.*, a man by a man, a musical man by a musical man; there being always some prior movent, which must be itself already in Actuality (b. 27). We have already declared that every thing generated is something generated out of something, and by something which is identical in species with the thing generated (b. 29). Hence it seems that there can be no builder who has built nothing, no harper who has never harped; for the man who is learning to harp learns by harping (b. 32); which gave occasion to the sophistical puzzle—That one, who does not possess the knowledge, will nevertheless do that to which the knowledge relates. The learner does not possess the knowledge; yet still he must have possessed some fragments of the knowledge: just as, in every thing which is in course of generation, some fraction must have been already generated; in every thing which is moved, some fraction has been already moved (b. 36).

Lastly, Actuality is *prius* as compared with Potentiality (not merely λόγῳ, καὶ χρόνῳ ἔστιν ὥς, but also) οὐσίᾳ (p. 1050, a. 4). In the first place, that which is latest in generation is first in Form and in Essence; a man compared with a child, man as compared with semen. Man already possesses the Form, semen does not. Next, every thing generated marches or gradually progresses towards its principle and towards its end. The principle is the οὐ ἔνεκα, and the generation is for the sake of the end. Now the end or consummation is Actuality, and for the sake of this the Potentiality is taken on (λαμβάνεται—a. 10). Animals do not see in order that they may have sight; they have sight in order that they may see:

they do not theorize in order that they may possess theoretical aptitude, but the converse; except indeed those who are practising as learners. Moreover, Matter is said to exist potentially, because it may come into Form; but, when it exists actually, it is then in Form (a. 16). (Alexander says: *ὥστε κἀν τούτῳ προτέρα (ἡ ἐνέργεια) ὡς ἐφ' ἐτὸν καὶ τάσσον καὶ εἰς κόσμον ἄγον δυνάμειος*—p. 559, 10, Bon.) The case is the same where the end is nothing beyond a particular mode of motion (e.g., dancing): the dancing-master has attained his end when he exhibits his pupil actually dancing. In natural productions this is no less true than in artificial: Nature has attained her end, when the product comes into ἐνέργεια; that is, when it is actually at work, from whence the name ἐνέργεια is derived (τὸ γὰρ ἔργον τέλος, ἡ δὲ ἐνέργεια τὸ ἔργον—καὶ συντείνει πρὸς τὴν ἐντελέχειαν—a. 23).

In some cases (as we have often remarked) the ultimum is use, without any ulterior product distinct from the use, e.g., the act of seeing is the ultimum of the visual power (p. 1050, a. 24); in other cases there is something ulterior and distinct, as a house from the building power. In the former of these cases, Actuality is the end of δύναμις; in the latter it is more the end than δύναμις. ("Ὁμῶς οὐθὲν ἦττον ἔνθα μὲν τέλος ἔνθα δὲ μᾶλλον τέλος τῆς δυνάμειος ἐστίν· ἡ γὰρ οἰκοδόμησις ἐν τῷ οἰκοδομουμένῳ, καὶ ἅμα γίγνεται καὶ ἐστὶ τῇ οἰκίᾳ—a. 29. This passage is obscure: see the comments of Alexander, with the notes of Schwegler and Bonitz, who accuse Alexander of misunderstanding it; though it appears to me that neither of them is quite clear. I understand Aristotle to reason as follows:—Ὁρασις is the τέλος, the ἐνέργεια, the consummation of the visual power called ὄψις; but οἰκοδόμησις is not the τέλος, the ἐνέργεια, the consummation of the building power called οἰκοδομική. This last has its τέλος, ἐνέργεια, consummation, in the ulterior product οἰκία. Nevertheless οἰκοδόμησις, residing as it does ἐν τῷ οἰκοδομουμένῳ, and coming into existence simultaneously with the house, is more the end, more akin to the end or consummation, than the building power called οἰκοδομική.)

In cases where there is an ulterior product beyond and apart from the exercise of the power, the Actuality (consummation) resides in that product (p. 1050, a. 31). In cases where is no such ulterior product, the Actuality resides in the same subject wherein the power resides. Thus sight resides in him who sees, and life in the soul. Hence also happiness resides in the soul; for happiness is a certain kind of life (b. 1).

It is thus plain that Actuality is the Essence and the Form, and that it is *prius* τῇ οὐσίᾳ compared with Potentiality. And, as has been already remarked, one Actuality always precedes another, in time, up

to the eternal Prime Movent (p. 1050, b. 5). Moreover, *ἐνέργεια* is *prior* to *δύναμις* in respect to speciality and dignity (*κυριωτέρως*—b. 6). For eternal things are *priora* in essence to destructible things, and nothing is eternal *δυνάμει*, as the reason of the case will show us (b. 8).

All Potentiality applies at once to both sides of the Antiphrasis—to the affirmative as well as to the negative. That which is not possible, will never occur to any thing; but every thing which is possible may never come to Actuality (*τὸ δυνατόν δὲ πάντων ἐνδέχεται μὴ ἐνεργεῖν*—p. 1050, b. 10). That which is possible to be, is also possible not to be. Now that which is possible not to be, may perhaps not be (*ἐνδέχεται μὴ εἶναι*—b. 13); but that which may not be, is destructible, either absolutely (that is, in respect to Essence), or in respect to such portions of its nature as may not be, that is, in respect to locality or quantity or quality. Accordingly, of those things which are absolutely, or in respect to Essence, indestructible, nothing exists *δυνάμει* absolutely or in respect to Essence, though it may exist *δυνάμει* in certain respects, as in respect to quality or locality); all of them exist *ἐνεργείᾳ* (b. 18). Nor does any thing exist *δυνάμει*, which exists by necessity; yet the things which exist by necessity are first of all (i.e., *priora* in regard to every thing else); for, if they did not exist, nothing would have existed. Moreover, if there be any Eternal Motion, or any Eternal Motum, it cannot be Motum *δυνάμει* except in respect to whence and whither; in that special respect, it may have Matter or Potentiality (b. 21).

Accordingly, the Sun, the Stars, and the whole Heaven, are always at work, and there is no danger of their ever standing still, which some physical philosophers fear (*ἀεὶ ἐνεργεῖ ὁ ἥλιος*—p. 1050, b. 22); nor are they fatigued in doing this. Motion with them is not a potentiality of both members of the Antiphrasis, either to be moved or not to be moved. If the fact were so—if their Essence were Matter and Power, and not Act—the perpetual continuity of (one side of the alternative) motion would be toilsome to them; but it is not toilsome, since Actuality is their very Essence (b. 28). Likewise mutable things (which are destructible), such as earth and fire, imitate these indestructible entities, being ever at work; for these elements possess motion by themselves and in themselves, each changing into another (b. 30; compare De Gen. et Corr. p. 337, a. 2). But the other *δυνάμεις* are all potentialities of both sides of the Antiphrasis, or of both alternatives. The rational *δυνάμεις* can cause motion in such and such way, or not in such and such way; the irrational *δυνάμεις* may be present or absent, and thus embrace both sides of the alternative (b. 33).

Hence we draw another argument for not admitting the Platonic

doctrine of Ideas, affirmed by the dialecticians (*οἱ ἐν τοῖς λόγοις*—p. 1050, b. 35). If there existed such Ideas, they would be only *δυνάμεις* in respect to the *ἐνέργεια* existing in their particular embodiments. Thus an individual cognizing man would be much more cognizant than *αὐτοεπιστήμη*; a particular substance in motion would be much more in motion than *κίνησις* or *αὐτοκίνησις* itself. For *αὐτοεπιστήμη* or *αὐτοκίνησις* are only *δυνάμεις* to the *ἐπιστήμὸν τι* or the *κινούμενόν τι*, which belong to *ἐνέργεια* (b. 36). (We may remark that in the Platonic Parmenides, p. 134, C., an argument the very opposite to this is urged. It is there contended that Cognition *per se* (the Idea) must be far more complete and accurate than any cognition which we possess.)

It is thus plain that *ἐνέργεια* is *prius* to *δύναμις*, and to every principle of change (p. 1051, a. 2). It is also better and more honourable than *δύναμις* even in the direction of good. We have already observed that *δύναμις* always includes both of two contraries, in the way of alternative: one of these must be the good, the other the bad. Now the actuality of good is better than the potentiality of good; the actuality of health is better than the potentiality of health, which latter must also include the potentiality of sickness, while the actuality of health excludes the actuality of sickness. On the other hand, the actuality of evil is worse than the potentiality of evil; for the potentiality is neither of the two contraries or both of them at once (a. 17). Hence we see that evil is nothing apart from particular things; since it is posterior in its nature even to Potentiality: there is therefore neither evil, nor error, nor destruction, in any of the principia or eternal Essences (a. 19). (The note of Bonitz here is just:—"Quem in hac argumentatione significavi errorem—judicium morale de bono et malo immisceri falso iis rebus, a quibus illud est alienum—ei non dissimilem Arist. in proximâ argumentatione, si recte ejus sententiam intelligo, videtur admisisse, quum quidem malum non esse *παρὰ τὰ πράγματα*, seorsim ac *per se* existens, demonstrare conatur." Aristotle here as elsewhere confounds the idea of Good, Perfection, Completeness, &c., with that of essential Priority. But what he says here—*οὐκ ἔστι τὸ κακὸν παρὰ τὰ πράγματα*—can hardly be reconciled with what he says in the *Physica* (pp. 189, 191, 192) about *στέρησις*, which he includes among the three *ἀρχαί*, and which he declares to be *κακοποιός*—p. 192, a. 15.)

Lastly, we discover geometrical truths by drawing visible diagrams, and thus translating the Potentialities into Actuality. If these diagrams were ready drawn for us by nature, there would be no difficulty in seeing these truths; but, as the case stands, the

truths only inhere in the figures potentially (p. 1051, a. 23: *εἰ δ' ἦν διηρημένα, φανερὰ ἂν ἦν· νῦν δ' ἐνυπάρχει δυνάμει*). If the triangle had a line ready drawn parallel to its side, we should have seen at once that its three angles were equal to two right angles. Potential truths are thus discovered by being translated into Actuality. The reason of this is, that the Actuality is itself an act of cogitation, so that the Potentiality springs from Actuality (*αἴτιον δ' ὅτι νόησις ἡ ἐνέργεια· ὥστ' ἐξ ἐνεργείας ἡ δύναμις*—a. 30. It is not therefore true—what the Platonists say—that the mathematical bodies and their properties are *οὐσίαι καὶ ἐνεργεῖαι*: they are only *δυνάμεις*, and they are brought into being by our cogitation or abstraction). It is true that each individual diagram drawn is posterior to the power of drawing it (a. 32).

Having gone through the discussion of Ens according to the first of the ten Categories, and of Ens Potential and Actual, we have now to say something about Ens as True or False in the strictest sense of the words (*τὸ δὲ κυριώτατον ὃν ἀληθὲς ἢ ψεῦδος*—p. 1051, b. 1). These words mean, in reference to things, either that they are conjoined or that they are disjoined. To speak truth is to affirm that things which are disjoined or conjoined in fact, are disjoined or conjoined; to speak falsely, the reverse. The appeal is to the fact: it is not because we truly call you white, that you are white; it is because you really are white, that we who call you white speak truth (b. 9). If there are some things which are always conjoined, others always disjoined, others again sometimes conjoined sometimes disjoined, propositions in reference to the first two classes affirming conjunction or disjunction, will be always true or always false, while in reference to the third class propositions may be either true or false, according to the case (b. 10).

But what shall we say in regard to things Uncompounded? In respect to them, what is truth or falsehood—to be or not to be? (*τὰ ἀσύνθετα*—p. 1051, b. 18). If we affirm white of the wood, or incommensurability of the diagonal, such conjunction of predicate and subject may be true or false; but how, if there be no predicate distinct from the subject? Where there is no distinction between predicate and subject, where the subject stands alone,—in these cases, there is no truth or falsehood in the sense explained above: no other truth except that the mind apprehends and names the subject, or fails to do so. You either know the subject, or you do not know it: there is no alternative but that of knowledge or ignorance; to be deceived is impossible about the question *Quid est* (*τὸ μὲν θιγεῖν καὶ φάναι ἀληθές, οὐ γὰρ ταὐτὸ κατάφασις καὶ φάσις, τὸ δ' ἄγνοεῖν μὴ θιγγάνειν· ἀπατηθῆναι γὰρ περὶ τὸ τί ἐστίν οὐκ ἐστιν*

ἀλλ' ἡ κατὰ συμβεβηκός—b. 25. The last words are thus explained by Bonitz: “nisi forte per abusum quendam vocabuli ipsam ignorantiam dixeris errorem”—p. 411.). All these uncompounded subjects exist actually, not potentially: if the latter had been true, they would have been generated and destroyed; but Ens Ipsum (τὸ ὄν αὐτό—b. 29) is neither generated nor destroyed; for, if it had been, it must have been generated out of something. Respecting all those things which exist in Essence and Actuality, you cannot be deceived: you may apprehend them in cogitation, or fail to apprehend them. The essential question respecting them is, whether they exist in such or such manner or not; as it is respecting the One and the Uncompounded—whether, being an existent, it exists thus and thus or not (b. 35). Truth consists in apprehending or cogitating them (p. 1052, a. 1): the contrary thereof is non-apprehension of them or ignorance (ἄγνοια), yet not analogous to blindness; for that would be equivalent to having no apprehensive intelligence (ὡς ἂν εἰ τὸ νοητικὸν ὅλως μὴ ἔχει τις—a. 3; one is not absolutely without νοητικόν, but one's νόησις does not suffice for apprehending these particular objects).

Respecting objects immovable and unchangeable, and apprehended as such, it is plain that there can be no mistake as to the When (κατὰ τὸ ποτέ—p. 1052, a. 5; i. e., a proposition which is true of them at one time cannot be false at another time). No man will suppose a triangle to have its three angles equal to two right angles at one time, but not at another. Even in these unchangeables, indeed, a man may mistake as to the What: he may suppose that there is no even number which is a prime number, or he may suppose that there are some even numbers which are prime, others which are not so; but, respecting any particular number, he will never suppose it to be sometimes prime, sometimes not prime (a. 10).

(In respect to the meaning of τὰ ἀσύνθετα—p. 1051, b. 17—Bonitz and Schwegler differ. Bonitz says, Comm. p. 409: “Compositæ quas dicit non sunt intelligendæ eæ quæ ex pluribus elementis coalescunt, sed eæ potius, in quibus cum substantia conjungitur accidens aliquod, veluti homo albus, homo sedens, diagonalis irrationalis, et similia.” Schwegler says, p. 187: “Unter den μὴ συνθεταὶ οὐσίαι versteht Arist. näher diejenigen Substanzen, die nicht ein σύνθετον oder σύνολον sondern ἀνευ ὕλης (οὐ δυνάμει) und schlechthin ἐνεργεία, also reine Formen sind, und als solche kein Werden und Vergehen haben.” Of these two different explanations, I think that the explanation given by Bonitz is the more correct, or at least the more probable.)

BOOK A.

WE have to speculate respecting Essence; for that which we are in search of is the principles and causes of Essences (p. 1069, a. 18). If we look upon the universe as one whole, Essence is the first part thereof: if we look upon it as a series of distinct units (εἰ τῷ ἐφεξῆς, a. 20), even in that view οὐσία stands first, ποιόν next, ποσόν third; indeed these last are not Entia at all, strictly speaking (a. 21)—I mean, for example, qualities and movements, and negative attributes such as not-white and not-straight; though we do talk of these last too as Entia, when we say *Est non-album*. Moreover Essence alone, and none of the other Categories, is separable. The old philosophers (οἱ ἀρχαῖοι) are in the main concurrent with us on this point, that Essence is *prius* to all others; for they investigated the principles, the elements, and the causes of Essence. The philosophers of the present day (Plato, &c.) declare Universals, rather than Particulars, to be Essences; for the genera are universal, which these philosophers, from devoting themselves to dialectical discussions, affirm to be more properly considered as Principles and Essences (a. 28); but the old philosophers considered particular things to be Essences, as fire and earth, for example, not the common body or Body in general (οὐ τὸ κοινὸν σῶμα—a. 30).

Now there are three Essences. The Perceivable includes two varieties: one, the Perishable, acknowledged by all, *e.g.*, animals and plants; the other Eternal, of which we must determine the elements, be they many or one. There is also the Immovable, which some consider to be separable (ἀλλῇ δὲ ἀκίνητος καὶ ταύτην τινὲς εἶναι φασὶ χωριστήν—p. 1069, a. 33; οὐσία νοητὴ καὶ ἀκίνητος—Schwegler's note): either recognizing two varieties thereof, distinct from each other—the Forms and Mathematical Entia; or not recognizing Forms as separable Entia, but only the Mathematical Entia (a. 36). Now the first, or Perceivable Essences, belong to physical science, since they are movable or endued with motion; the Immovable Essences, whether there be two varieties of them or only one, belong to a science distinct from physical. The Perceivable and the Immovable Essences have no common principle (b. 2).

The Perceivable Essence is subject to change (μεταβλητή). Since change takes place either out of Opposites or out of Intermediates, and not out of every variety of Opposites, but only out of Contraries (ἐκ τῆς οἰκείας ἀποφάσεως, ἐκ τῆς οἰκείας στέρησεως—Alex-

ander, pp. 644, 645, Bon.; the voice, *e.g.*, is not white, yet change does not take place from voice to white, these being *disparates*, or of different genera: τὰ γένει διαφέροντα οὐκ ἔχει ὁδὸν εἰς ἄλληλα—I. iv. p. 1055, a. 6), there must of necessity be a certain Substratum which changes into the contrary condition; for contraries do not change into each other. The substratum remains, but the contraries do not remain: there is therefore a third something besides the contraries; and that is Matter (p. 1069, b. 9). Since then the varieties of change are four: (1) γένεσις and φθορά (κατὰ τὸ τί), (2) αὔξεισις καὶ φθίσις (κατὰ τὸ πῶσόν), (3) ἀλλοιώσις (κατὰ τὸ πάθος or κατὰ τὸ ποιόν), (4) φορά (κατὰ τόπον or κατὰ τὸ ποῦ), each of these changes will take place into its respective contrary: the Matter will necessarily change, having the potentiality of both contraries (b. 14). Ens being two-fold, all change takes place out of Ens Potentiâ into Ens Actu, *e.g.*, out of potential white into actual white; and the like holds for Increase and Decrease. Thus not only may there be generation from Non-Ens accidentally, but all generation takes place also out of Ens; that is, out of Ens Potentiâ, not Ens Actu (b. 20). This Ens Potentiâ is what Anaxagoras really means by his Unum, which is a better phrase than ὁμοῦ πάντα; what Empedokles and Anaxagoras mean by their μῆγμα; what Demokritus means when he says ὁμοῦ πάντα. They mean that all things existed at once potentially, though not actually; and we see that these philosophers got partial hold of the idea of Matter (ὥστε τῆς ὕλης ἂν εἴεν ἡμμένοι—b. 24). All things subject to change possess Matter, but each of them a different Matter; even the eternal things which are not generated but moved in place, possess Matter—not generated, but *from whence whither* (*i.e.*, the Matter of local movement pure and simple—direction: καὶ τῶν αἰδίων ὅσα μὴ γεννητὰ κινητὰ δὲ φορά, ἀλλ' οὐ γεννητὰ (ὕλην), ἀλλὰ πόθεν ποῦ—b. 26).

Since there are three varieties of Non-Ens (p. 1069, b. 27; Alexander and Bonitz explain this τριχῶς differently), it may seem difficult to determine, out of which among the three Generation takes place. But the answer is, that the Potential Ens is not potential of every thing alike and at haphazard, but potential in each case from something towards something (εἰ δὲ τί ἐστὶ δυνάμει, ἀλλ' ὁμως οὐ τοῦ τυχόντος, ἀλλ' ἕτερον ἐξ ἑτέρου—b. 29). Nor is it enough to tell us that all things are huddled together (ὁμοῦ πάντα χρήματα—b. 30); for they differ in respect to Matter or Potentiality. If this were not so, how is it that they are of infinite diversity, and not all One? The Noûs (*i.e.*, according to the theory of Anaxagoras) is One; so that, if the Matter were One also, it would

become in actuality that which it was at first in potentiality, and the result would be all One and the Same (b. 32).

The Causes are thus three and the Principles are three: the pair of Contraries, one of them Form (λόγος καὶ εἶδος), the other Privation, and the third Matter (p. 1069, b. 35). But we must keep in mind that neither *Materia Prima* nor *Forma Prima* is generated. For in all Change, there is something (the Matter) which undergoes change; something by which the change is effected (the Prime Movent, ὑφ' οὗ μὲν, τοῦ πρώτου κινούντος—p. 1070, a. 1); and something into which the change takes place (the Form). The brass becomes round; but, if both the brass becomes and the round becomes, you will be condemned to an infinite regression: you must stop somewhere (ἀνάγκη δὴ στήναι—a. 4). Moreover, every *Essentia* is generated out of another *Essentia* of the same name and form (ἐκ συνωνύμου—a. 5). All generated things proceed either from Nature, Art, Fortune, or Spontaneity. It is Nature, where the principle or beginning is in the subject itself; it is Art, where the principle or beginning is in something apart from the subject; Fortune is the privation of Art; Spontaneity is the privation of Nature (αἱ δὲ λοιπαὶ αἰτίαι στερήσεις τούτων—a. 9). *Essentiæ* are threefold: (1) Matter, which appears to be *Hoc Aliquid* but is not so, for detached members or fragments, simply touching each other without coalescing, are matter and substratum (i. e., prepared for something ulterior); (2) Nature, which is really *Hoc Aliquid*—a certain definite condition, into which generation takes place (ἡ δὲ φύσις καὶ τόδε τι, εἰς ἣν, καὶ ἕξίς τις—a. 12); (3) The Concrete of the two preceding—the individual object called Sokrates or Kallias. In some cases there is no *Hoc Aliquid* except in this Concrete or Compound; thus in artificial objects or productions, such as a house or health, there is no Form except the Art itself: the ideal house, pre-existing in the mind of the builder, is generated and destroyed in a different sense from the real house. It is in the case of natural objects, if in any case, that there exists a *Hoc Aliquid* independent of the concrete individual (a. 17).

Hence Plato was not wrong in saying that Forms were coextensive with natural objects (ὅποσα φύσει—p. 1070, a. 18), if there are Forms distinct from these objects: such as fire, flesh, head, which are all properly Matter. The Last Matter (or that which has come most under the influence of Form) belongs to that which is in the fullest sense *Essentia* (or the individual concrete named Sokrates or Kallias—a. 20). The Moving Causes pre-exist, as real individual beings or objects: the Formal Causes come into existence simultaneously with

the individual real compound. When the patient becomes well, then health comes at the same time into existence : when the brazen sphere comes, the sphericity of it comes at the same time (a. 24). Whether any thing of the Form continues after the dissolution of the individual compound, is a problem to be investigated (a. 25). In some cases nothing hinders but what it may continue; for example, the soul may be of such a nature : I do not mean every soul—for every soul perhaps cannot continue—but the *Noûs* or rational soul (a. 27). Still it is plain that this affords no support to the theory of self-existent separate Ideas ; for every individual man is begotten by another individual man. In like manner also with respect to the arts ; for the medical art affords the Form or rational explanation of health (a. 30 ; i.e., health is generated, not by the Idea of Health, but by the medical art, or by the artist in whom that art is embodied).

Causes and principles, in one point of view, are different for different subjects ; but in another point of view, they are the same for all ; that is, if we speak generally and according to analogy (if we confine ourselves to the most general terms, Form, Privation, Matter, &c.). In respect to *Essentia*, *Relatio*, and the remainder of the Categories, a difficulty arises to say whether the causes, elements, and principles of all the Categories are the same. It would be strange if they were all the same ; because then *Essentiæ*, as well as *Relata*, would proceed out of the same causes and elements. For, what can these latter be ? They cannot be extra-categorical ; since there exists no general class apart from or besides *Essentia* and the other Categories (p. 1070, b. 1). Nor can any one Category be the element of the others : for the element is *prius* to that of which it is the element. Nor again can *Essentia* be the element of *Relata* ; nor is any one of the nine Categories the element of *Essentia*. Again, how is it possible that the elements of all the Categories can be the same ? No element can be the same as that compound of which it is an element : neither B nor A can be the same as B A. If, therefore, there were such elements, they must be extra-categorical ; which is impossible. Nor can the element in question (the supposed one and the same) be any cogitable, such as *Ens* or *Unum* ; for every individual Concrete is both *Ens* and *Unum*, and the element cannot be identical with the compound put together out of it. Neither *Essentia* nor *Relatio* could be said to exist, if *Ens* were the element out of which they are composed ; but these Categories exist necessarily : therefore there is no one and the same element common to all the Categories (b. 9).

Yet we ought perhaps rather to repeat, what was observed before,

that in one sense, the elements of all are the same; in another sense, different. Take for example the perceivable bodies. We find here hot as the Form, cold as the Privation; as Matter, there is that which is, primarily and *per se*, both hot and cold potentially: the hot and the cold are both *Essentiæ*; likewise other things of which these are the principles, *e.g.*, flesh and bone, which of necessity are different from the principles out of which they proceed (b. 15). Flesh and bone have these elements and principles; other things have other elements and principles. The same specific principles cannot be assigned to all, but only principles analogous to these in each case, as saying, in general terms, that there are three principles—Form, Privation, Matter. Each of these is different in every different genus; thus in colour, the principles are white, black, surface, light, darkness, air, and out of these are generated day and night (b. 21).

The three preceding causes are all intrinsic or immanent (*ἐν-πάροντα*). But there are other causes also extrinsic, such as the Movent. So that Principle and Element are not exactly identical; for Principle as well as Cause includes all the four: *τὸ κινεῖν ἢ ἰστάν* is a Principle, and is itself an *Essentia* (p. 1070, b. 25). Thus the analogous Elements are three, while the Principles or Causes are four; but the four are specifically different in each different case. Thus, health is Form; sickness is Privation; body is Matter; the medical art is Movent. House is Form; disorder of a certain sort is Privation; bricks are Matter; the building art is Movent. We thus make out four Causes; yet, in a certain sense, there will be only three (b. 32). For, in natural products, a man is the Movent Cause of a man; in artificial products (*ἐν τοῖς ἀπὸ διανοίας*) the Movent is Form or Privation. In a certain sense, the medical art is health, and the building art is the Form of a house, and a man begets a man. And farther, over and above these special movent causes, there is the *Primum Movens* of all (b. 35).

We distinguish what is separable from what is not separable. Now *Essentiæ*, and they only, are separable; accordingly they are the causes of every thing else, since without *Essentiæ* there cannot be either affections or movements (p. 1071, a. 2). Such causes would be soul and body, or reason, appetite, and body. Again, in another sense, the principles of all things are generically the same, though specifically different; such are *Potentia* and *Actus*. In some cases, the same thing exists now potentially, at another time actually; thus wine, though actually wine, is potentially vinegar; flesh is actually flesh, potentially a man. *Potentia* and *Actus* will merge in the above-mentioned causes—Form, Privation,

Matter, Movent (a. 7). For the Form (if it be separable), the Concrete (of Form and Matter), and Privation (like darkness or sickness)—all these exist actually; while Matter exists potentially, capable either of Form or Privation. Things differ potentially and actually sometimes through difference in the Matter, sometimes through difference in the Form. Thus, the cause of a man is, in the way of Matter, the elements fire and earth; in the way of Form, his own Form, and the same Form in another individual—his father; and besides these, the Sun with its oblique motion; which last is neither Matter, nor Form, nor Privation, nor the like Form in another individual, but a Movent Cause (ἀλλὰ κινῶντα—a. 17).

We must remember, besides, that some things may be described in general terms, others cannot be so described. The first principles of all things are, speaking in general terms, *Hoc Primum Actus* and *Aliud Primum Potentiæ*. These universals do not really exist (p. 1071, a. 19), for the principium of all individuals is some other individual. Man indeed is the principium of the Universal Man, but no Universal Man exists (a. 21). Peleus is the principium of Achilles; your father, of you; this B, of that B A; B, the universal, of B A the universal. Next (after the Movent) come the Forms of Essences; but the different genera thereof (as has been already stated), colours, sounds, essences, quantities, &c., have different causes and elements, though the same when described in general terms and by analogy; also different individuals in the same species have different causes and elements, not indeed different in species, but different individually; that is, your Matter, your Movent, your Form, are different from mine, though in general terms and definition they are the same (τῷ καθόλου δὲ λόγῳ ταῦτά—a. 29).

When therefore, we enquire, What are the principles or elements of Essences, of Relata, of Qualities &c., and whether they are the same or different? it is plain that, generically speaking (allowing for difference of meaning—πολλὰχῶς, p. 1071, a. 31), they are the same in each; but, speaking distributively and with reference to particulars, they are different, and not the same. In the following sense (ὡδί—a. 34), they are the same, namely, in the way of Analogy (τῷ ἀνάλογον). They are always Matter, Form, Privation, the Movent; hence the causes of Essences are causes of all other things, since, when Essences disappear, all the rest disappears along with them: besides all these, there is the *Primum Movens Actuale*, common to all (ἐστὶ τὸ πρῶτον ἐντελεχέα—a. 36). In the following sense, again, they are different—when we cease to speak of genera, and pass from equivocal terms to particulars: wherever there are different oppositos (as white and black, health and sickness) and

wherever there are different Matters (καὶ ἔτι αἱ ὕλαι—p. 1071, b. 1; ὕλαι in the plural, rare).

We have thus declared, respecting the principles of Perceivable Essences, what and how many they are; in what respect the same, and in what respect they are different. Essences are threefold; two Physical and one Immovable. We shall proceed to speak of this last. There exists, of necessity, some Eternal, Immovable Essence. For Essences are the first of all existent things; and, if they all be perishable, every thing is perishable. But it is impossible that Motion can ever have been generated or can ever be destroyed; for it always existed: it is eternal. There is the like impossibility about Time: for, if Time did not exist, there could be nothing *prius* and nothing *posterius* (p. 1071, b. 8). Both Motion and Time are thus eternal; both are also continuous; for either the two are identical, or Time is an affection (πάθος) of Motion. Now no mode of Motion is continuous except local motion; and that in a circle (for rectilinear motion cannot be continuous and eternal). There must be a Movent or Producent Principle (κινητικὸν ἢ ποιητικόν—b. 12); but, if the Movent existed potentially and not actually, there could not be motion continuous and eternal; for that which has mere power may never come into act. There will be no use therefore in such eternal Essences as Plato assumes in his Ideas, unless there be along with them some principle of potential change (εἰ μὴ τις δυναμένη ἐνέσται ἀρχὴ μεταβάλλειν—b. 15). Nor indeed will even that be sufficient (i. e., any principle of *merely potential* change), nor any other Essence (such as Numbers—Schwegler) besides or along with the Platonic Ideas; for, if this *principium* shall not come into Actuality (εἰ μὴ ἐνεργήσει—b. 17), the motion which we postulate, continuous and eternal, will not result from it. Nor will it even be sufficient that the Movent Principle should be supposed to be in actuality or operation (οὐδ' εἰ ἐνεργήσει, p. 1071, b. 18), if its Essence be Potentiality: the motion resulting therefrom cannot be eternal; for that which exists potentially may perhaps not exist at all. The Movent Principles therefore must be something of which the Essence is Actuality (b. 19), and which shall be without Matter, for they must be eternal, otherwise nothing else can be eternal. They must therefore be essential Actualities (b. 22).

Here however, a difficulty suggests itself. It seems that every thing which is in actuality must also be in potentiality, but that every thing which is in potentiality does not in every case come into actuality: so that Potentiality seems the *prius* of the two (δοκεῖ γὰρ τὸ μὲν ἐνεργεῖν πᾶν δύνασθαι, τὸ δὲ δυνάμενον οὐ πᾶν ἐνεργεῖν—

p. 1071, b. 24; Bonitz compares p. 1060, a. 1: ἀρχὴ γὰρ τὸ συναναυροῦν). But, if this were true, no Entia could exist; for it may be that they exist potentially, but not yet exist actually (b. 26). There is the like impossibility, if we adopt the theory of those theologians (Orpheus, Hesiod, &c.) who take their departure from Night, or of those physical philosophers who begin with a chaotic huddle of all things. In both cases such original condition is one of mere potentiality; and how can it ever be put in motion, if there is to be no cause in actuality (εἰ μὴθὲν ἔσται ἐνεργεία αἴτιον —b. 29)? Matter will never cause motion in itself, but must wait for the carpenter's art; nor will the earth, but must wait for seed.

It is for this reason that some philosophers, like Plato and Leukippus, represent Actuality as eternal; for they say that motion has always existed. But they do not say what variety of motion, nor why that variety, to the exclusion of others. For nothing is moved at haphazard; there must always be some reason why it is moved in one way rather than another: for example, by nature in one way; by other causes, such as violence or Noûs, in some other way (p. 1071, b. 36). But it is not competent to Plato to assume what he sometimes does assume as principium (p. 1072, a. 2—allusion to Plato Phædrus 245, E), viz., a Self-Movent; for Plato affirms (in Timæus 34, B) that the soul is *posterius*, and coæval with the Kosmos. The doctrine just mentioned—That the Potential is prior to the Actual—is true in one sense, but not true in another; we have already explained *how* (εἰρηται δὲ πῶς—a. 4. Schwegler thinks, note p. 254, that this εἰρηται refers to what has been said in Book Θ, p. 1049, b. 3, seq.; and this seems probable, though Bonitz in his note contests it, and refers to his own theory, set forth in his Proœmium pp. 24, 25, that Book Λ is a separate treatise of Aristotle, completely distinct from all the rest of the *Metaphysica*. This theory of Bonitz may be in the main true; but it is still possible that Book Θ may have been written previously, and that Aristotle may here refer to it, as Schwegler supposes.).

That Actuality is prior to Potentiality, is conformable to the doctrine of Anaxagoras, Noûs in his doctrine existing in Actuality; also to that of Empedokles, who introduces Friendship and Enmity; and again, to that of Leukippus, who affirms Motion to be eternal. So that Chaos or Night (*i. e.*, mere Potentiality) did not prevail for an infinite anterior time, but the same things came round in perpetual vicissitude or rotation; which consists with the doctrine that Actuality is prior to Potentiality. If the same condition comes round periodically, we must necessarily assume something Actual,

which perpetually actualizes in the same manner (δεῖ τι ἀεὶ μένειν ὡσαύτως ἐνεργοῦν—p. 1072, a. 10). Again, if generation and destruction are to take place, we must assume something else Actual, which actualizes in a manner perpetually changing (ἄλλο δεῖ εἶναι ἀεὶ ἐνεργοῦν ἄλλως καὶ ἄλλως—a. 12). This last must actualize sometimes *per se*, sometimes in a different way; that is, according to some other influence, or according to the First (or Uniform) Actual. But it will necessarily actualize according to the First Actual; which will thus be a cause both to itself, and to the variable Actual. Now the First Actual is the best; for it is the cause of perpetual sameness, while the other is cause of variety; both together are the cause of unceasing variety. But this is how the motions really stand. Why then, should we look out for other principles (a. 18)?

Now, since the preceding views are consistent with the facts and may be true (ἐπεὶ δ' οὕτω τ' ἐνδέχεται—p. 1072, a. 18)—and, if they be not true, we shall be compelled to admit that every thing proceeds either from Night, or from confused Chaos or Non-Ens—we may consider the problem as solved. There exists something always in unceasing circular motion: this is evident not merely from reason, but from fact. The First Heaven (Aplanês or Fixed Star sphere) will therefore be eternal. There must therefore exist something which causes this unceasing motion, or some Prime Movent. But, since *Movens Immobile*, *Movens Motum*, *Motum non Movens*, form a series of three terms, and since the two last of these certainly exist, we may infer that the first exists also; and that the Prime Movent, which causes the motion of the Aplanês, is immovable (a. 20–25.—This passage perplexes all the commentators—Schwegler, Bonitz, Alexander, &c. It can hardly be construed without more or less change of the text. I do not see to what real things Aristotle can allude under the description of *Mota* which are not *Moventia*. There is much to be said for Pierron and Zévort's translation, p. 220: "Comme il n'y a que trois sortes d'êtres—ce qui est mu, ce qui meut, et le moyen terme entre ce qui est mu et ce qui meut: c'est un être (i. e., this middle term is an être) qui meut sans être mu."—Bonitz disapproves this interpretation of the word μέσον, and it is certainly singular to say that between *Movens* and *Motum*, the term *Movens sed non Motum* forms a medium: *Motum sed non Movens* would form just as good a medium.). This Prime Movent, which causes motion without being itself moved, must be eternal, must be *Essentia*, and must be an *Actuality*.

Now both the *Appetibile* (τὸ ὁρεκτόν) and the *Cogitabile* (τὸ νοητόν) cause motion in this way, i. e., without being moved

themselves; moreover the Primum Appetibile and the Primum Cogitabile are coincident or identical (p. 1072, a. 27). For that which appears beautiful, is the object of desire; but that which is beautiful, is the first object of will (a. 28). Cogitation is the principium of the two (the primary fact or fundamental element): we will so and so, because we think it good; it is not true that we think it good because we will it (*ὁρεγόμεθα δὲ διότι δοκεῖ, μᾶλλον ἢ δοκεῖ διότι ὁρεγόμεθα*—a. 29). Now the Cogitant Mind (*νοῦς*) is moved by the Cogitabile, and, in the series of fundamental Contraries, the members of one side of the series are Cogitabilia *per se* (while those of the other side are only Cogitabilia *per aliud*—*νοητὴ δ' ἡ ἐτέρα συστοιχία καθ' αὐτήν*—a. 31; see Alex., p. 668, 16, Bon.). These Cogitabilia *per se* are first as to *Essentia* (i. e., compared with the Cogitabilia *per aliud*, they are logically *priora*): and again, among *Essentiae*, that variety which is simple and actual comes first (i. e., it is logically *prius*, as compared with the compound and the potential). Now *Unum* is not identical with *Simplex*: *Unum* signifies that which is a measure of something else, while *Simplex* denotes a peculiar attribute of the subject in itself (a. 34). But the *Pulchrum* and the *Eligibile per se* belongs to the same side of the series of Contraries, as the Cogitabilia *per se*: and the Primum *Pulchrum* or *Eligibile* is the Best or akin thereunto, in its own particular ascending scale (b. 1).

That *τὸ οὐ ἔνεκα* is among the Immovables, may be seen by our Treatise *De Bono*, where we give a string of generic and specific distributions (*ἡ διαίρεσις δηλοῖ*—p. 1072, b. 2; see the interpretation of Alexander, adopted both by Schwegler and by Bonitz). For *τὸ οὐ ἔνεκα* is used in a double sense: in one of the two senses it ranks among the Immovables: in another it does not (*ἔστι γὰρ διττὸν τὸ οὐ ἔνεκα*, b. 3—*διττὸν* is Schwegler's correction, adopted by Bonitz). It causes motion, in the manner of a beloved object; and that which it causes to move, causes motion in the other things (*κινεῖ δὲ ὡς ἐρώμενον τὸ δὲ κινούμενον τᾶλλα κινεῖ*—b. 3; *τὸ δὲ κινούμενον* is the conjecture of Schwegler and Bonitz).

Now, if any thing be moved, there is a possibility that it may be in a condition different from that in which it actually is. If the first actuality of the Movable be translation or motion in space, there is a possibility that it may be otherwise than it is as to place, even though it cannot be otherwise than it is as to *Essentia* (p. 1072, b. 7).

But, as to the Prime Movent, which is itself immovable, and which exists in actuality, it is impossible that *that* can be other than what it is, in any respect whatever (p. 1072, b. 8). For the first

of all changes is local motion, or rotation in a circle, and this is exactly what the Prime Movent imparts (but does not itself possess). It exists by necessity, and by that species of necessity which implies the perfect and beautiful: and in this character it is the originating principle. For there are three varieties of necessity: (1) That of violence, in contradiction to the natural impulse; (2) That without which good or perfection cannot be had; (3) That which is what it is absolutely, without possibility of being otherwise. From a principle of this nature (*i. e.*, necessary in the two last senses) depend the Heaven and all Nature (b. 14).

The mode of existence (*διαγωγή*) of this Prime Movent is for ever that which *we* enjoy in our best moments, but which we cannot obtain permanently; for its actuality itself is also pleasure (p. 1072, b. 16). As actuality is pleasure, so the various actualities of waking, perceiving, cogitating, are to us the pleasantest part of our life; while hopes and remembrances are pleasing by derivation from them (but these states we men cannot enjoy permanently and without intermittence). Cogitation *per se* (*i. e.*, cogitation in its most perfect condition) embraces that which is best *per se*; and most of all when it is most perfect. The Noûs thus cogitates itself through participation of the Cogitabile: for it becomes itself cogitable by touching the Cogitabile and cogitating: so that Cogitans and Cogitabile become identical. For Noûs in general (the human Noûs also) is in potentiality the recipient of the Cogitabile, and of Essentia or Forms; and it comes into actuality by possessing these Forms. So that what the Prime Movent possesses is more divine than the divine element which Noûs in general involves; and the actuality of theorizing is the pleasantest and best of all conditions (*νοητὸς γὰρ γίγνεται θεγγάνων καὶ νοῶν, ὥστε ταῦτόν νοῦς καὶ νοητόν. τὸ γὰρ δεκτικὸν τοῦ νοητοῦ καὶ τῆς οὐσίας νοῦς. ἐνεργεῖ δὲ ἔχων ὥστ' ἐκείνο μᾶλλον τούτου ὃ δοκεῖ ὁ νοῦς θεῶν ἔχειν, καὶ ἡ θεωρία τὸ ἡδιστον καὶ ἀριστον*—b. 24. This is a very difficult passage, in which one cannot be sure of interpreting rightly. None of the commentators are perfectly satisfactory. The pronoun ἐκείνο seems to refer to ἡ νόησις ἢ καθ' αὐτήν—three lines back. The contrast seems to be between the Prime Movent, and Noûs in general, including the human Noûs. Τὸ δεκτικόν cannot refer to the Prime Movent, which has no potentiality, but must refer to the human Noûs, which is not at first, nor always, in a state of actuality. Μᾶλλον seems equivalent to *θειότερον*. The human Noûs has *θειόν* τ, by reason of its potentiality to theorize.).

Thus it is wonderful, if God has perpetually an existence like that of our best moments; and still more wonderful, if he has a

better. Yet such is the fact. Life belongs to him : for the actuality of *Noûs* is life, and God is actuality. His life, eternal and best, is actuality *per se* (or *par excellence*). We declare God to be an Animal Optimum Æternum, so that duration eternal and continuous (*αἰὼν συνεχής*) belongs to him : for *that* is God (*τοῦτο γὰρ ὁ θεός*—p. 1072, b. 30).

The Pythagoreans and Speusippus are mistaken in affirming that Optimum and Pulcherrimum is not to be found in the originating principle (*ἐν ἀρχῇ*) ; on the ground that the principles of plants and animals are indeed causes, but that the beautiful and perfect appears first in the results of those principles. For the seed first proceeds out of antecedent perfect animals : the first is not seed, but the perfect animal. Thus we must say that the man is prior to the seed : I do not mean the man who sprang from the seed, but the other man from whom the seed proceeded (p. 1073, a. 2).

From the preceding reasonings, it is evident that there exists an Essence eternal, immovable, and separated from all the perceivable Essences. We have shown (in *Physica* ; see Schwegler's note) that this Essence can have no magnitude ; that it is without parts and indivisible (p. 1073, a. 6). For it causes in other subjects motion for an infinite time ; and nothing finite can have infinite power. For this reason the Prime Movent cannot have finite magnitude ; but every magnitude is either finite or infinite, and there is no such thing as infinite magnitude ; therefore the Prime Movent can have no magnitude at all. We have also shown that it is unchangeable in quality, and without any affections (*ἀπαθὲς καὶ ἀναλλοίωτον*). For all other varieties of change are posterior as compared with locomotive change or motion in space, which is the first of all. As the Prime Movent is exempt from this first, much more is it exempt from the others (a. 13).

We must now consider whether we ought to recognize one such Movent or Essence only, or several of the same Essences ? and, if several, how many ? Respecting the number thereof we must remember that our predecessors have laid down no clear or decisive doctrines (*ἀποφάσεις*, p. 1073, a. 16). The Platonic theory of Ideas includes no peculiar research on this subject (a. 18). The Platonists call these Ideas Numbers : about which they talk sometimes as if there were an infinite multitude of them, sometimes as if they were fixed as reaching to the dekad and not higher—but they furnish no demonstrative reason why they should stop at the dekad. We shall proceed to discuss the point consistently with our preceding definitions and with the nature of the subjects

(a. 23). The Principium, the First of all Entia, is immovable both *per se* and *per accidens*: it causes motion in another subject, to which it imparts the first or locomotive change, one and eternal (a. 25). The Motum must necessarily be moved by something; the Prime Movent must be immovable *per se*; eternal motion must be caused by an eternal Movent; and one motion by one Movent (a. 30). But we see that, over and above the simple rotation of the All (or First Heaven), which rotation we affirm to be caused by the Primum Movens Immobile, there are also other eternal rotations of the Planets; for the circular Celestial Body, as we have shown in the *Physica*, is eternal and never at rest (a. 32). We must therefore necessarily assume that each of these rotations of the Planets is caused by a Movent Immobile *per se*—by an eternal Essence (a. 35). For the Stars and Planets are in their nature eternal Essences: that which moves them must be itself eternal, and prior to that which it causes to be moved; likewise that which is prior to Essence must itself be Essence, and cannot be any thing else (a. 37). It is plain, therefore, that there must necessarily exist a number of Essences, each eternal by nature, immovable *per se*, and without magnitude, as Movents to the Heavenly Bodies and equal in number thereto (a. 38). These Essences are arranged in an order of first, second, &c., corresponding to the order of the planetary rotations (b. 2). But what the number of these rotations is, we must learn from Astronomy—that one among the mathematical sciences which is most akin (*οἰκειοτάτης*) to the First Philosophy; for Astronomy theorizes about Essence perceivable but eternal, while Arithmetic and Geometry do not treat of any Essence at all (*περὶ οὐδεμιᾶς οὐσίας*—b. 7). That the rotations are more in number than the rotating bodies, is known to all who have any tincture of Astronomy; for each of the Planets is carried round in more than one rotation (b. 10). But what the exact number of these rotations is, we shall proceed to state upon the authority of some mathematicians, for the sake of instruction, that the reader may have some definite number present to his mind: for the rest, he must both investigate for himself and put questions to other investigators; and, if he learns from the scientific men any thing dissenting from what we here lay down, he must love both dissentients but follow that one who reasons most accurately (*φιλεῖν μὲν ἀμφοτέρους, πείθεσθαι δὲ τοῖς ἀκριβεστέροις*—b. 16).

Aristotle then proceeds to unfold the number and arrangement of the planetary spheres and the corrective or counter-rolling (*ἀνελιτρούσας*) spheres implicated with them (p. 1073, b. 17—p. 1074, a. 14).

He afterwards proceeds: Let the number of spheres thus be forty-seven; so that it will be reasonable to assume the Immovable Movent Essences and Principles to be forty-seven also, as well as the perceivable spheres (*αἰσθητάς*—p. 1074, a. 16): we say *reasonable* (*εὐλογον*), for we shall leave to stronger heads to declare it *necessary*. But, since there cannot be any rotation except such as contributes to the rotation of one of the Planets, and since we must assume that each Nature and each Essence is exempt from extraneous affection and possessed *per se* of the Best as an end, so there will be no other Nature besides the forty-seven above enumerated, and this number will be the *necessary* total of the Essences (a. 21). For, if there were any others, they would cause motion by serving as an end for some rotation to aspire to (*κινεῖεν ἂν ὡς τέλος οἶσαι φροῶς*—a. 23); but it is impossible that there can be any other rotation besides those that have been enumerated.

We may fairly infer this from the bodies which are carried in rotation (*ἐκ τῶν φερομένων*—p. 1074, a. 24). For, if every carrier exists naturally for the sake of the thing carried, and if every current or rotation is a current of something carried, there can exist no current either for the sake of itself or for the sake of some other current. Every current must exist for the sake of the Planets, and with a view to their rotation. For, if one current existed for the sake of another, this last must exist for the sake of a third, and so on; but you cannot go on in this way *ad infinitum*; and therefore the end of every current must be, one or other of the Divine Bodies which are carried round in the heavens (a. 31).

That there is only one Heaven, we may plainly see. For, if there were many heavens, as there are many men, the principium of each would be one *in specie*, though the principia would be many *in numero* (p. 1074, a. 33). But all things that are many in number, have Matter, and are many, by reason of their Matter; for to all these many, there is one and the same Form (*λόγος*)—definition or rational explanation: *e.g.*, one for all men, among whom Sokrates is one (a. 35). But the First Essence has no Matter; for it is an Actual (*τὸ δὲ τί ἦν εἶναι οὐκ ἔχει ὕλην τὸ πρῶτον· ἐντελέχεια γάρ*—a. 36). The Primum Movens Immobile is therefore One, both in definition and in number; accordingly, the Motum—that which is moved both eternally and continuously—is One also. There exists therefore only one Heaven (p. 1074, a. 38).

Now it has been handed down in a mythical way, from the old and most ancient teachers (p. 1074, b. 1) to their successors, that these (Eternal Essences) are gods, and that the divine element comprehends all nature (*ὅτι θεοί τέ εἰσιν οὗτοι καὶ περιέχει τὸ θεῖον τὴν ὅλην*

φύσιν—b. 3). The other accompaniments of the received creed have been superadded with a view to persuading the multitude and to useful purposes for the laws and the common interest (b. 4); wherefore the gods have been depicted as like to men and to some other animals, combined with other similar accompaniments. If a man, abstracting from these stories, accepts only the first and fundamental truth—That they conceived the First Essences as gods, he will consider it as a divine doctrine (θείως ἂν εἰρησθαὶ νομίσαιεν—b. 9), preserved and handed down as fragments of truth from the most ancient times. For probably all art and philosophy and truth have been many times discovered, lost, and rediscovered. To this point alone, and thus far, the opinion of our fathers and of the first men is evident to us (b. 14).

There are however various difficulties connected with the Noûs; for it would seem to be more divine than the visible celestial objects, and yet we do not understand what its condition can be to be such (p. 1074, b. 17). For, if it cogitates nothing but is in the condition of slumber and inaction, what ground can there be for respecting it (τί ἂν εἴη τὸ σεμνόν—b. 18)? And, if it cogitates something actually, yet if this process depends upon something foreign and independent (i.e., upon the Cogitatum), the Noûs cannot be the best Essence; since it is then essentially not Cogitation in act, but only the potentiality of Cogitation; while its title to respect arises from actual Cogitation. Again, whether we assume its Essence to be Cogitation actual or Cogitation potential, *what* does it cogitate? It must cogitate either itself, or something different from itself; and, if the latter, either always the same Cogitatum, or sometimes one, sometimes another. But is there no difference whether its Cogitatum is honourable or vulgar? Are there not some things which it is absurd to cogitate? Evidently the Noûs must cogitate what is most divine and most honourable, without any change; for, if it did change, it must change for the worse, and that very change would at once (ἤδη) be a certain motion; whereas the Noûs is essentially immovable (b. 27). First of all, if the Essence of the Noûs be, not Cogitation actual but, Cogitation potential, we may reasonably conceive that the perpetuity of Cogitation would be fatiguing to it (b. 29); next, we see plainly that there must exist something else more honourable than the Noûs; namely, the Cogitatum; for to cogitate, and the act of cogitation, will belong even to one who cogitates the vilest object. If cogitation of vile objects be detestable (φευκτόν, b. 32)—for not to see some things is better than to see them—Cogitation cannot be the

best of all things (i.e., Cogitation absolutely, whatever be the Cogitatum).

Since the Noûs is itself the best of all things, it must employ its cogitation upon itself and nothing else. Its cogitation will thus be Cogitation of Cogitation (*αὐτὸν ἄρα νοεῖ, εἴπερ ἐστὶ τὸ κράτιστον, καὶ ἔστιν ἡ νόσις νοήσεως νόσις*—p. 1074, b. 35). Yet, if we look to the human mind, Cognition, Perception, Opinion, Mental Discourse, &c., appear always as having direct reference to something else, and as referring each to itself only in an indirect and secondary way (*ἀεὶ ἄλλου—αὐτῆς δ' ἐν παρέργῳ*—b. 36); and farther, if to cogitate is one thing and to be cogitated another thing, in which of the two points of view will the *bene* of the Noûs consist? To be Cogitation, and to be a Cogitatum, are not logically the same (*οὐδὲ γὰρ ταὐτὸ τὸ εἶναι νοήσει καὶ νοουμένῳ*—b. 38).

But may we not meet these difficulties by replying that there are some things in which Cognition is identical with the Cognitum? that is, in those Cognita which are altogether exempt from Matter? In Constructive cognitions without Matter, the Form and the τ. η. ε. is both Cognitum and Cognitio; in Theoretical cognitions without Matter, the Notion and the Cogitation is itself the Cognitum (*ὁ λόγος τὸ πρᾶγμα καὶ ἡ νόσις*). Since it appears, therefore, that, wherever there is no Matter, Cogitatum and Noûs are not different, the same will be true of the divine Noûs: its Cogitatio and its Cogitatum will be identical (p. 1075, a. 5).

One farther difficulty remains, if we suppose the Cogitatum to be a Compound (*σύνθετον*); for, on that supposition, the Cogitans would change in running through the different parts of the whole. But the reply seems to be, that every thing which has not Matter is indivisible and not compound (p. 1075, a. 7). As the human Noûs, being that which deals with compounds, comports itself for a certain time—for it does not attain its *bene* in cogitating this or that part of the compound, but in apprehending a certain total or completion which is something different from any of the parts—so does the divine Noûs, engaged in cogitation of itself, comport itself in perpetuity (a. 10).

Another point to be considered is—in what manner the nature of the Universe (*ἡ τοῦ ὅλου φύσις*—p. 1075, a. 11) includes Bonum and Optimum. Is Bonum included as something separate and as an adjunct by itself transcendent? Or is it immanent, pervading the whole arrangement of the constituent parts? Or does it exist in both ways at once, as in the case of a disciplined army; for, in this latter, Bonum belongs both to the array and to the general, and indeed more to the latter, since the array is directed by the general,

not the general by the array. All things in the universe are marshalled in a certain orderly way—the aquatic creatures, the aërial, and the plants; but all things are not marshalled alike. The universe is not such that there is no relation between one thing and another: there is such a relation; for every thing is marshalled with a view to one end, though in different degrees. As, in a family, the freemen have least discretion left to them to act at hazard, but all or most of their proceedings are regulated, while slaves and oxen are not required to do much towards the common good, but are left for the most part to act at hazard,—in this way the principium of each is arranged by nature (a. 23). For example, every thing must necessarily come to the termination of one individual existence to make room for another: there are also some other facts and conditions common to all things in the universe (λέγω δ' ὅλον εἰς γε τὸ διακριθῆναι ἀνάγκη ἀπᾶσιν ἐλθεῖν—a. 23; see the explanation of διακριθῆναι, given by Bonitz, Comm. p. 519—not very certain).

In concluding this exposition, we must not lose sight of the absurdities and impossibilities which attach to all others, nor what is advanced by the most ingenious philosophers before us, nor which of their theories carries with it the fewest difficulties (p. 1075, a. 27).

That all things proceed from Contraries, all these philosophers agree in affirming. But it is not true that all things are generated, nor that they are generated from contraries; for the celestial substance is not generated at all, nor has it any contrary. Moreover, in those cases where there really are contraries, these philosophers do not teach us how generation can take place out of them; for contraries themselves have no effect upon each other. Now our doctrine solves this difficulty reasonably, by introducing a *tertium quid* (p. 1075, a. 31)—Matter. Some of these philosophers erroneously consider Matter to be itself one of the contraries: they consider the Unequal as matter or substratum to the Equal; or the Many as matter or substratum to the One; (Evil, as opposed to Good). We resolve this in the same way: our Matter is one, is contrary itself to nothing, but may be potentially either of two contraries. Farthermore, if we admit the doctrine that Evil itself is Matter or one of the elements, the inference will follow that every thing whatever, except the Unum itself, partakes of Evil (a. 6).

Some philosophers do not admit either Good or Evil to be principles at all; but they are manifestly wrong; for in all things Good is most of all the principle (p. 1075, a. 37). Others again are

so far right that they recognize Good as a principle: but they do not tell us *how* it is a principle—whether as End, or as Movent, or as Form.

Empedokles lays down a strange doctrine: he makes Friendship to be the Good (p. 1075, b. 2). But, in his theory, Friendship is principle partly as Movent, for its function is to bring together (*συνάγει γάρ*—b. 3); partly as Matter, for it is itself a portion of the mixture (*μόριον τοῦ μίγματος*—b. 4). Now, even granting the possibility that the same thing may be *per accidens* (*κατὰ συμβεβηκός*—b. 5, i. e., by special coincidence in any one particular case) principle as Movent, and also principle as Matter, nevertheless the two are not the same logically and by definition. Under which of the two, therefore, are we to reckon Friendship? It is moreover another strange feature in the theory of Empedokles, that he makes Enmity to be indestructible; for this very Enmity is with him the nature and principle of Evil (b. 8).

Anaxagoras declares Good to be the principle as Movent; for, in his theory, Noûs causes motion; but it causes motion with a view to some end, which is of course different from itself; so that the real principle is different from Noûs: unless indeed he adopted one of our tenets; for we too say that, in a certain sense, the medical art is health (p. 1075, b. 10; Z. vii. p. 1032, b. 10). It is moreover absurd, that Anaxagoras does not recognize any contrary to Good and to the Noûs (b. 11). (Bonitz remarks, Comm. p. 522:—Aristotle means that Anaxagoras was wrong, because he failed “*ad eam devenire rationem, ut intellectum sui ipsius intelligentiam ideoque sui ipsius τέλος esse statueret*”; farther, he remarks, on the line b. 10—*ἄτοπον δὲ καὶ τὸ ἐναντίον μὴ ποιῆσαι τῷ ἀγαθῷ καὶ τῷ κατὰ*: “*Quid enim? nonne pariter et eodem jure νοὺς ἀμειγρῆς, quem posuit Anaxagoras, ab omni contrarietate et oppositione immunis sit, ac primus motor apud Aristotelem?*”—Aristotle would have replied to this: “I recognize principles of Evil under the names of ὕλη and στέργεις; the last of the two being directly opposed to Form (Regularity or Good), the first of the two being indifferent and equally ready as a recipient both for evil and for good. My Prime Movent acts like an ἐρώμενον in causing motion in the Celestial Substance: the motion of this last is pure Good, without any mixture of Evil. But, when this motion is transmitted to the sublunary elements, it becomes corrupted by ὕλη and στέργεις, so that Evil becomes mingled with the Good. Anaxagoras recognizes no counteracting principles, analogous to ὕλη and στέργεις, so that Evil, on his theory, remains unexplained.”)

Those philosophers who lay down Contraries as their principles, do not make proper use of these Contraries, unless their language be improved or modified (p. 1075, b. 12). Nor do they tell us why some things are destructible, other things indestructible; for they trace all things to the same principles. Some make all things to proceed from Non-Ens; others, to escape that necessity, make all things One (and thus recognize no real change or generation at all—the Eleates, b. 16). Again, not one of them tells us why generation must always be, or what is the cause of generation. Once more, those who recognize two contrary principles must necessarily recognize a third superior to both (b. 18); and the Platonists with their Ideas are under the like necessity. For they must assign some reason why particular things partake of these Ideas.

Other philosophers, moreover, must consistently with their theories recognize something contrary to Wisdom and to the most venerable Cognition. But we are under no such necessity; for there is nothing contrary to the First (τῷ πρώτῳ). All contraries involve Matter, and are in potentiality the same: one of the two contraries is ignorance in regard to the other; but the First has no contrary (p. 1075, b. 24).

Again, if there be no Entia beyond the Perceptibilia, there can be no beginning, no arrangement in order, no generation, no celestial bodies or proceedings (i.e., all these will remain unexplained). There will always be a beginning behind the beginning, *ad infinitum*; as there is in the theories of all the theologians and physical philosophers (p. 1075, b. 27). And, even if we recognize, beyond the Perceptibilia, Ideas or Numbers, these are causes of nothing; or, if causes of any thing, they are certainly not causes of motion. How, moreover, can Magnitude, and a Continuum arise out of that which has no Magnitude? Number cannot, either as Movent or as Form, produce a Continuum (b. 30).

Again, (Contraries cannot be principles, because) no Contrary can be essentially Constructive and essentially Movent (p. 1075, b. 31); for Contraries involve Matter and Potentiality, and may possibly, therefore, not exist. And, if there be Potentiality, it will come prior to Actuality: upon that supposition therefore (i.e., of Contraries as the fundamental principles) Entia could not be eternal. But Entia are eternal; therefore these theories must be in part amended: we have shown how (b. 34).

Farther, none of these theories explains how it is that numbers coalesce into One; or soul and body into One; or Form and Matter into one Concrete. Nor can they explain this, unless they adopt

our doctrine, that the Movent brings about this coalition (p. 1075, b. 37).

Those philosophers (like Speusippus) who recognize many different grades and species of Entia (first the Mathematical Number, &c.), with separate principles for each, make the Essence of the Universe to be incoherent (*ἐπεισοδιώδη*—p. 1076, a. 1) and set up many distinct principles; for none of these Essences contributes to or bears upon the remainder, whether it exists or does not exist. Now Entia are not willing to be badly governed (*τὰ δὲ ὄντα οὐ βούλεται πολιτεύεσθαι κακῶς. "οὐκ ἀγαθὸν πολυκρανίη· εἰς κοίρανος."*—p. 1076, a. 4).

IV.

DE CÆLO.

Book I.

CH. 1.—The science of Nature has for its principal object—Bodies, Magnitudes, and the various affections and movements of Bodies and Magnitudes; also the beginnings or principles of this sort of Essence. The Continuous is that which is divisible into parts perpetually divisible; and Body is that which is divisible in every direction. Of magnitudes, some (lines) are divisible only in one direction; others (planes) only in two directions; others again (bodies) in three directions. This is the maximum: there is no other magnitude beyond; for three are all, and to say “in three directions” is the same as to say “in all directions.” As the Pythagoreans say, The Universe and All Things are determined by Three: in End, Middle, and Beginning, lies the number of the Universe, or the Triad. We have received these as laws from nature, and we accordingly employ this number (Three) for solemnities in honour of the Gods. Moreover, we apply our predicates on the same principle; for we call Two, and The Two—Both, but we do not call them All. Three is the first number to which we apply the predicate All. Herein (as was observed before) we follow the lead of Nature herself. Since therefore these three phrases—All Things, The Universe, The Perfect or Complete—do not specifically differ from each other, but are distinguished only in respect of the matter or occasions on which they are applied, Body is the only kind of Magnitude which can be declared Perfect or Complete, that is, All; for it is the only magnitude determined or defined by the Three. Being divisible in three directions, it is divisible every way; other magnitudes are divisible either only in one way or only in two. Magnitudes are both divisible and continuous according to the number by which they are designated—continuous in one direction, in two, in three, or all. All divisible magnitudes are also continuous: whether all continuous magnitudes are divisible, is not yet clear. But what is clear is—that there is no upward transition to a higher genus beyond Body, as there is from line to surface, and from surface to Body. If there were, Body would not be perfect or complete as a magnitude; for the tran-

sition would be made at the point of deficiency; but the perfect or complete can have no deficiency: it stretches every way. Such is each body included as a part in the universe: it has dimensions in every direction. Yet each is distinguished from its neighbour by contact, and each therefore in a certain sense is many. But the Universe ($\tau\acute{o}\ \pi\acute{\alpha}\nu$) including all these parts is of necessity perfect and complete; extending not merely in one way, and in another way not, but $\pi\acute{\alpha}\nu\tau\eta$, as the word literally means (ss. 1-4).

CH. 2.—Respecting the nature of the Universe, we shall enquire presently whether in the aggregate it be infinite or of finite magnitude. But first let us speak about its different constituent species, proceeding on the following basis. I affirm that all natural bodies and magnitudes are *per se* locally movable; and that Nature is to them a beginning or principle of motion. Now all Local Motion (known by the name of $\phi\omicron\rho\acute{\alpha}$) is either Rectilinear or Circular, or compounded of the two; for these two are the only simple motions, by reason that the only two simple magnitudes are the rectilinear and the circular. The circular is motion round the centre; the rectilinear is motion either downwards towards the centre or upwards from the centre. These three are the only simple modes of motion or currents: as I said in the last chapter that body was made complete in the number three, so also the motion of body is made complete in the number three. Now, as there are some bodies (such as fire, earth, and their cognates) which are simple (i.e., which have in themselves a natural beginning or principle of motion), and others which are compounds of these, so also there must be simple motions belonging to the former and compound motions belonging to the latter; such compound motions being determined by the preponderant element therein. Since, therefore, circular motion is a simple mode of motion, and since simple modes of motion belong only to simple bodies, there must of necessity be a particular variety of simple body, whose especial nature it is to be carried round in circular motion. By violence, indeed, one body might be moved in a mode belonging to another; but not by nature. Moreover, since motion against nature is opposite to motion conformable to nature, and since each mode has one single opposite, simple circular motion, if it be not conformable to the nature of this body, must be against its nature. If then the body rotating in a circle be fire or any of the other elements, its natural mode of motion must be opposite to circular motion. But each thing has only one opposite; and up and down are each other's opposites. If then the body which rotates in a circle rotates thus against nature, it must have some other mode of motion conformable to nature. But this is impossible: for, if the motion

conformable to its nature be motion upwards, the body must be fire or air; if motion downwards, the body must be earth or water (and there is no other simple mode of motion that it can have). Moreover, its rotatory motion must be a first motion; for the perfect is prior in nature to the imperfect. Now the circle is perfect; but no straight line is perfect: neither an infinite straight line, for in order to be perfect, it must have an end and a boundary; nor any finite straight line, for each has something without it and may be prolonged at pleasure. So that, if motion first by nature belong to a body first by nature, if circular motion (as being perfect) be prior to rectilinear motion, and if rectilinear motion belong to a first or a simple body, as we see both in fire and in earth,—we may be sure *à fortiori* that circular motion belongs to a simple body, and that there is, besides the four elements here, prior to them and more divine than them, a different body of special nature and essence. Indeed, since circular motion is against the nature of these four elements, there must be some other different body to whose nature it is conformable. There must thus be some simple and primary body, whose nature it is to be carried round in a circle, as earth is carried downwards and fire upwards. On the assumption that the revolving bodies revolved against their own nature, it would be wonderful and even unreasonable that this one single mode of motion, being thus contrary to nature, should be continuous and eternal; for in all other things we see that what is contrary to nature dies away most speedily. Now, if the revolving body were fire, as some affirm, the revolving motion would be just as much contrary to its nature as motion downwards; for the natural motion of fire is upwards or away from the centre. Reasoning from all these premisses, we may safely conclude that, distinct from all these bodies which are here around us, there exists a body whose nature is more honourable in proportion to its greater distance from us here (see 1-13).

CH. 3.—We plainly cannot affirm that every body is either heavy or light: meaning by heavy, that which is carried by its nature downwards or towards the centre; by light, that which is carried by its nature upwards or away from the centre. Heaviest (or earth) is that which underlies all other downward moving bodies, lightest (fire) is that which floats above all upward moving bodies. Air and water are both light and heavy, relatively, but relatively to different terms of comparison; thus, water is heavy as compared to air and fire, light as compared to earth. But that body whose nature it is to revolve in a circle, cannot possibly have either heaviness or levity; for it cannot move in a right line, either upwards or downwards, nor either by nature

or against nature. Not by nature, for, in that case, it must be identical with some one of the four elements; not against nature, because, if it moved upwards against nature, this would prove that motion downwards was conformable to its nature, and it would thus be identical with earth: we have already seen that, if a body moves upwards against nature, it must move downwards according to nature, and *vice versâ*. Now the same natural motion which belongs to any body as a whole, belongs also to its minute fragments (to the whole earth and to any one of its constituent clods). Accordingly the revolving body in its local movement of revolution cannot possibly be dragged in any other direction, either upward or downward,—neither the whole nor any portion thereof. It is alike reasonable to conceive it as ungenerable, indestructible, incapable both of increase and of qualitative change (*ἀναγξὴς καὶ ἀνολοίωτον*). It cannot be generated, because every thing generated comes out of a substratum and an opposite, into which it relapses on being destroyed. Now the revolving body has no opposite; for we have already seen that opposite bodies have their currents of motion opposite, and there is no current of motion opposite to that of circular rotation. Nature has rightly excepted this ungenerable and indestructible substance from the action of contraries, in which generation and destruction occur. It is also incapable of increase or diminution, because these processes take place through the accession of new cognate materials; and in this case there are none such. It is farther incapable of qualitative change, because this always implies the being affected favourably or unfavourably (*πράθος*); and this last never takes place, in plants or in animals, without some increase or diminution in quantity (ss. 1–5).

This Celestial Substance is thus eternal, ungenerable, indestructible, noway increased nor diminished, neither growing old nor capable of disturbing affections nor changeable in quality. Herein the evidence of reason and that of phenomena concur. For all men, Hellenes and Barbarians, have some belief respecting the Gods, and all who believe Gods to exist assign to the divine nature the uppermost place in the Kosmos; an immortal place going naturally along with immortal persons. Our perceptions confirm this sufficiently, at least when we speak with reference to human belief. For not the smallest change has ever been observed in the celestial substance, throughout all past time. Under these impressions, the ancients gave to it the name which it now bears; for the same opinions suggest themselves to us not once, nor twice, but an infinite number of times. Hence the ancients, regarding the First Body as something distinct from Fire, Earth, Air, or Water, called the uppermost place *Æther*, from its being always running (*ἀπὸ*

τοῦ θεῖν ἀεί), the adverbial designation being derived from eternal duration. Anaxagoras employs this name improperly: he calls Fire by the name of Æther (s. 6).

It is plain, from all we have said, that the simple bodies cannot be more in number than those just indicated; for a simple body must of necessity have a simple mode of motion, and there are only three simple modes of motion—one circular and two rectilinear, one of these being from the centre, the other towards the centre (s. 7).

CH. 4.—That Circular Rotation has no motion opposed to it, may be shown by several different arguments. If there were any, it would certainly be rectilinear motion; for convex and concave, though each respectively opposed to the other, are, when both put together, opposed as a couple to rectilinear motion. But each variety of rectilinear motion has another variety of rectilinear motion opposed to it; and each thing has but one opposite. Moreover the oppositions between one motion (or one current—*φορὰ*) and another are founded upon oppositions of place, which are three in number: (1) Above and Below; (2) Before and Behind; (3) Right and Left. Now the motion in circular rotation from A to B is not opposite to that from B to A: the opposition of motion is along the straight line which joins the two; for an infinite number of different circles may be drawn, not interfering with each other, but all passing through the same two points A and B. In the same semicircle, the opposition between the current from A to B and that from B to A, is along the line of diameter—not along the line of circumference. If one circular current were really opposed to any other circular current, one or other of the two would have existed to no purpose; for both have the same object. That is to say: what is carried round in a circle, let it begin from any point whatever, must necessarily come round equally to all the opposite places, above, below, before, behind, right, left. If the two (presumed) opposite circular currents were equal, they would neutralize each other, and there would be no motion at all of either of them. If one of the two were the more powerful, it would extinguish the other; so that to suppose the existence of both is to suppose that one or both exists in vain (i.e., can never be realized). We say that a sandal exists in vain (*μάτην*), when it cannot be fastened on. But God and Nature do nothing in vain (ss. 1–8).

CH. 5.—Most of the ancient philosophers admitted an infinite body; but this may be shown to be impossible. The question is very important; for the consequences which follow from admitting the Infinite as principium, affect our speculations concerning the whole of Nature (s. 1).

Every body is of necessity either simple or compound. The infinite body therefore, if it exists, must of necessity be either one or the other. But there can be no infinite compound composed of simple bodies finite in magnitude and in number; so that, if an infinite body exist, it must be simple. We shall first enquire whether the First Body, whose nature it is to move in a circle, can be infinite in magnitude. Now, if it were infinite, the radii thrown out from the centre would be infinite, and the distance between them would also be infinite; that is, no finite peripheral line can be found touching all the extremities of the radii without: if any such line be assumed, you may always assume a greater. We call Number infinite, because the greatest number cannot be given; and the like may be said about this distance. Now, as an infinite distance cannot be passed over, no circular motion passing over it is possible, so as to come round to the point of departure. But we see plainly that the First Body or the Heaven does come round in a circle; and it has been shown by reasoning *à priori* that there is a variety of body whose nature it is to move in a circle. Such a body therefore as the First (revolving) Body cannot be infinite (ss. 2, 3).

Four other arguments are added, proving the same conclusion (s. 4, seq.). One of them is: That an infinite square, circle, or sphere, is an impossibility; each of these figures being defined or determined. As there can be no infinite circle, so neither can an infinite body be moved round in a circle (s. 7).

CH. 6.—As the First Body cannot be infinite, so neither can those bodies be infinite whose nature it is to move to the centre and from the centre—neither the centripetal nor the centrifugal body. For these two currents are opposite in nature; opposite currents being characterized by the opposite places to which they tend. But of two opposites, if the one be fixed and determinate, the other must be fixed and determinate also. Now the centre is determined; for the centripetal body, let it fall from what height it will, can never fall lower than the centre; and, since the centre is determined, the upper region or extremity must also be determined. The places at each extreme being thus determined, the intermediate space must be determined also; otherwise there would exist motion undetermined or infinite, which has been shown in a former treatise to be impossible (*Physica*, VIII. viii.); and therefore that body which either is therein, or may possibly be therein, must be determined. But it is a fact that the centripetal body and the centrifugal body can be therein; for centripetality and centrifugality are of the nature of each respectively (ss. 1, 2).

Hence we see that there can be no infinite body. There are other reasons also. As the centripetal body is heavy, if it be infinite, its gravity must also be infinite; and, if gravity cannot be infinite, neither can any heavy body be infinite. The like about any light body, such as the centrifugal (s. 3).

He then shows (by a long process of reasoning, not easy to follow) first, that there cannot be an infinite body with finite gravity; next, that there can be no infinite gravity. Accordingly there can be no infinite body at all, having gravity. At the end, he considers that this is established, (1) by the partial arguments (*διὰ τῶν κατὰ μέρος*) immediately preceding; (2) by the general reasonings in his other treatises respecting first principles, in which he explained the Infinite—in what sense it existed and did not exist; (3) by an argument about the Infinite, upon which he touches in the next chapter (ss. 4–13).

CH. 7.—Every body is of necessity either infinite or finite. If infinite, it is as a whole either of like constituents or of unlike. If the latter, either of a finite number of species, or of an infinite number. The last is impossible, if our fundamental assumptions are allowed to stand. For since the simple modes of motion are limited in number, the simple bodies must be alike limited; each simple mode of motion belonging to its own special simple body, and each natural body having always its own natural motion. But, if the Infinite be composed of a finite number of species, each of these constituent parts must be infinite; that is, water and fire must be infinite. Yet this too is impossible; for we have seen that there cannot be either infinite levity or infinite gravity (the attributes of fire and water). Moreover, if these bodies be infinite, the places which they occupy, and the motions which they make, must also be infinite; but this also we have shown to be inadmissible, if our fundamental assumptions are admitted. The centripetal body cannot be carried to an infinite distance downward, nor the centrifugal body to an infinite distance upward. That which cannot come to pass, cannot be in course of coming to pass; thus, if a thing cannot come to be white, or a cubit long, or domiciled in Egypt, it cannot be in course of becoming white, or a cubit long, &c. It cannot be in course of being carried to a terminus which cannot be reached. It might be argued that fire, though discontinuous and dispersed, might still be infinite, in the sum total of its different masses. But body is that which is extended in every direction: how can there be many bodies unlike to each other, yet each of them infinite? Each of them, if infinite at all, ought to be infinite in every direction (ss. 1–5).

We thus see that the Infinite cannot consist of unlike constituents.

But neither can it consist of constituents all similar. For, first, there are only three simple motions, and one of the three it must have; but we have shown that it cannot have either centripetal or centrifugal motion (*i. e.*, that it cannot have either infinite gravity or infinite levity); nor can it again have circular motion, for the Infinite cannot be carried in a circle: this would amount to saying that the Heaven is infinite, which we have shown to be impossible. The Infinite indeed cannot be moved in any way at all; for, if moved, it must be moved either according to nature, or contrary to nature (violently), and, if its present motion be violent, it must have some other mode of motion which is natural to it. But, if it have any such, this assumes that there exists some other place belonging to it, into which it may be conveyed—an obvious impossibility (ss. 6, 7).

Farthermore, the Infinite cannot act in any way upon the Finite, nor be acted upon thereby (ss. 8–10). Nor can the Infinite be acted upon in any way by the Infinite (ss. 11, 12).

If then every perceptible body possesses powers, as agent or patient or both, there can be no perceptible body which is infinite. But all bodies which are in any place are perceptible; therefore no body which is in any place can be infinite. There is no infinite body, indeed there can be no body at all, outside of the Heaven: for that which is outside of the Heaven is in a place. Even if perceivable only up to a certain point (*μέχρι τινός*), even if merely intelligible, it would still be in a place, and would therefore come under the foregoing argument—that there is no body outside of the Heaven (ss. 13, 14).

The foregoing reasoning may be summed up, in more general language (*λογικώτερον*), as follows:—The Infinite assumed as homogeneous cannot be moved in a circle, since the Infinite has no centre; nor in a straight line, since this would imply a second infinite place into which it must be moved according to nature, and a third infinite place into which it must be moved against nature, and since in either case the force which causes it to be moved must be infinite. But we have already argued, in treating of Motion (*Phys. VIII. x.*) that nothing finite can have infinite power, nothing infinite can have finite power; and, if that which is moved according to nature can also be moved contrary to nature, there must of necessity be two Infinites—*Movens* and *Motum*. Yet what can that be which causes the Infinite to move? If it cause itself to move, it must be animated (*ἐμψυχον*): but how can an infinite animated being (*ζῶον*) exist? And, if there be any thing else which causes it to move, there must exist two Infinites, each distinguished from the other in form and power (ss. 15–17).

Again, even if we admit the doctrine of Leukippos and Demokritus—That the whole is not continuous, but discontinuous, atoms divided by intervening spaces—still the Infinite is inadmissible. For the nature and essence of these atoms is all the same, though they are different from each other in figure and arrangement; accordingly the motion of all must be the same: if one is heavy or centripetal, all must be so alike; if one is light or centrifugal, all must be so alike. But either of these motions would imply the existence of centre and periphery; which does not consist with an infinite whole. In the Infinite, there is neither centre nor periphery; no terminus prefixed either for upward or downward motion; no *own place* either for centripetal or centrifugal matter. Therefore in an infinite universe, there can be no notion at all (ss. 18, 19).

CH. 8.—There cannot be more than one Kosmos. All things both rest and are moved, either by violence, or according to nature. In that place to which it is carried by nature, it also rests by nature: in that place to which it is carried by violence, it rests by violence. If the current which we see towards the centre is by violence, the opposite current must be natural; if earth is carried by violence from thence hitherward, its natural current must be from hence thitherward; and, if being here it rests without violence, its current towards here must be a natural one. For there is one only which is natural. Now, if there be many Kosmi, they must be alike in their nature, and must be composed of the same bodies, having the same nature and powers—fire, earth, and the two intermediate elements: for, if the bodies here are not the same as those in other Kosmi—if the same names are given in an equivocal sense and do not connote the same specific attributes—the name Kosmos must be equivocal also, and there cannot be many true or real Kosmi, in the same sense. To the parts or elements of each Kosmos, therefore, the centripetal and centrifugal currents are natural; for the simple currents are limited in number, and each element is so named as to connote one of them specially; and, if the currents are the same, the elements must also be the same everywhere. If there were another Kosmos, the earth in that would tend towards the centre of our Kosmos, and the fire in that would tend towards the periphery of our Kosmos. But this is impossible; since in that case the earth in that Kosmos would run away from the centre of its own Kosmos, and the fire therein would run away from its own periphery. Either we must not admit the same nature in the simple elements of the numerous Kosmi; or, if we do admit it, we must recognize only one centre and one periphery. This difficulty prevents our recognizing more than one Kosmos (ss. 1-6).

It is unphilosophical to affirm that the nature of these simple elements becomes changed according as they are more or less distant from their own places. The difference is at best one of degree, not one of kind. That they *are* moved, we see plainly; there must therefore be some one current of motion natural to them. Accordingly every portion of the same element (or of elements the same in kind) must tend towards the same numerical place—towards this actual centre (πρὸς τόδε τι μέσον), or that actual periphery; and, if the tendency be towards one centre *specie*, but towards many centres *numero*, because particulars differ *numero* alone, and not *specie*, still the attribute will be alike in all, and will not be present in some portions, absent in others: I mean that, if the portions of this Kosmos are relative to each other, those in another Kosmos are in the like condition, and what is taken from this Kosmos will not be different from what is taken from the corresponding elements of any other Kosmos. Unless these assumptions can be overthrown, it is indisputably certain that there can be only one centre and one periphery; by consequence therefore, only one Kosmos and not more (ss. 7-10).

There are other reasons to show that there is a given terminus for the natural current both of fire and of earth. A thing moved, speaking generally, changes from something definite into something else definite; but there are different species of such change: the change called getting-well is from sickness to health; that called growth is from the little to the great; that called local movement is from a terminus to another terminus, and local movements are specifically different from each other, according as the terminus *a quo* and the terminus *ad quem* is defined in each. The terminus is always a known and definite point: it is not accidental, nor dependent upon the arbitrium of the mover. Fire and earth therefore do not move on to infinity, but to definite points in opposite directions; and the local antithesis is between above and below: these are the two termini of the respective currents. Earth is carried with greater velocity, the nearer it approaches to the centre; fire is carried with greater velocity, the nearer it approaches to the periphery. This shows that its current does not stretch to infinity; for its velocity would then increase infinitely. Earth is not carried downward by the force of any thing else, nor fire upwards: not by any violence, nor by squeezing out (ἐκθλίψει), as some say. If this were so, a larger quantity of earth would move downward, and a larger quantity of fire upward, more slowly than a smaller. But the reverse is what occurs: the larger quantity of earth moves downward more rapidly than the smaller: if its motion had been caused by violence or by squeezing out, such motion would have

slackened as it became more widely distant from the moving force (ss. 11-14).

We may deduce the same conclusion from the reasonings of the First Philosophy, also from the fact of circular motion which of necessity is constant both here and everywhere. Further, it is clear that there can be only one Kosmos; for, as there are three bodily elements, so there are three special places of such elements: one the undermost, at the centre; another the uppermost, at the periphery, revolving in a circular orbit; the third, in the intermediate place between the two, being the light or floating element (*τὸ ἐπιπόλαζον*); for, if not there, it must be outside of the Kosmos, which is impossible (ss. 15, 16).

CH. 9.—We must however now examine some reasons, which have been alleged to prove the contrary; and which seem to show, not only that there are many Kosmi, but even that there *must* be many, and that the hypothesis of one single Kosmos is inadmissible. It is urged that in all aggregates, natural as well as artificial, the Form by itself is one thing, and the Form implicated with Matter is another. When we declare the definition of a sphere or a circle, we do not include therein gold or brass, for this makes no part of the essence: if we mention these metals, it is when we cannot conceive or grasp anything beyond the particular case; for example, if we have one particular circle before us. Nevertheless, even here the circle in the abstract is one thing, and this particular circle is another: the first is the Form by itself, the last is the Form along with Matter, one among particular objects. Now, since the Heaven is perceivable by sense, it must be one among particular objects; for every thing perceivable is implicated with Matter. As such, it is *this* Heaven: to be *this* Heaven (Form along with Matter) is one thing; to be the Heaven simply and absolutely (Form without Matter) is another. Now, wherever there is Form, there either are or may be many distinct particulars; whether we admit (with Plato) that the Forms exist separately, or not. In all things where the Essence is implicated with Matter, we see that the particular manifestations are many and of indefinite number. Upon this reasoning therefore, there are or at least may be many Heavens: the supposition that there can be no more than one, is inadmissible (ss. 1-2).

But we must see how far this reasoning will hold. That the Form without Matter differs from the Form with Matter, is perfectly true. But this does not show that there must be many Kosmi; nor can there be many, if this one Kosmos exhausts all

the matter that exists. If the matter of man were flesh and bone, and if a single man were formed, including all flesh and all bone indissolubly united; there could not possibly exist any other man; and the like is true about other objects; for, where the essence is implicated with an underlying matter, no object can come into existence unless some matter be furnished. The Kosmos, or Heaven, is a particular object, composed partly out of appropriate matter: but if it absorbs all the appropriate matter, no second Kosmos can come to pass. We shall now show that it does include all the appropriate matter (ss. 3-5).

The word Heaven has three different senses. 1. It means the essence of the extreme periphery of the universe, or the natural body which is there situated: we call this highest and farthest place Heaven, where we suppose all the divine agency to be situated (*ἐν ᾧ τὸ θεῖον πᾶν ἰδρῆσθαι φάμεν*). 2. It means the body continuous (*τὸ συνεχὲς σῶμα*) with the extreme periphery of the universe, wherein are contained Sun, Moon, and some of the Stars (Planets); for these we affirm to be in the Heaven. 3. In a third sense, it means the body circumscribed (*περιεχόμενον*) by this extreme periphery: for we usually call the Whole and the Universe, Heaven.—These being the three senses of Heaven, the Whole circumscribed by the extreme periphery must by necessity consist of all the natural and perceivable body existing, since there neither is nor can be any such outside of the Heaven. For, if there were any such outside of the Heaven, it must be either one of the elements or a compound thereof—either by nature or contrary to nature. For we have shown that each of the three elements—the circular, the centrifugal, and the centripetal—has its own special place by nature; and that, even if the place in which it now is were not its natural place, that place would be the natural place of another one among the three; for, if a place be contrary to nature in reference to one, it must be conformable to nature in reference to another. Neither of these three elements therefore can be outside of the Heaven, nor, of course, any of their compounds. And there exists no other body besides these; nor can there exist any other (ss. 6, 7).

We see therefore plainly that there neither is nor can be any mass of body (*σώματος ὄγκον*) outside of the Heaven; and that the Heaven comprehends all matter—all body natural and perceptible. So that there neither are, nor ever have been, nor ever can be, many Heavens: this one is unique as well as perfect. Nor is there either place, or vacuum, or time, outside of the Heaven. There is no place or vacuum; because, if there were, body might be placed therein; which we have shown to be impossible. There is no

time; because time is the number of motion, and there can be no motion without some natural body; but there cannot exist any extra-celestial body. Neither, therefore, are the things outside of the Heaven in place, nor is there time to affect them with old age, nor do they undergo change of any kind. They are without any change of quality and without susceptibility of suffering; they remain, throughout the entire *Æon*, in possession of the best and most self-sufficing life. The word *Æon* is a divine expression proposed (*θείως ἔφθηνται*) by the ancient philosophers: they call the *Æon* of each creature that end which circumscribes the natural duration of the creature's life. Pursuant to this same explanation, the end of the whole Heaven—the end comprising all time and the infinity of all things—is *Æon*, so denominated ἀπὸ τοῦ ἀεὶ εἶναι, immortal and divine. From this is suspended existence and life for all other things; for some closely and strictly, for others faintly and feebly. For it is a doctrine often repeated to us in ordinary philosophical discourse (*ἐν τοῖς ἐγκυκλίοις φιλοσοφήμασι*) respecting divine matters—that the Divine, every thing primary and supreme, is by necessity unchangeable; and this confirms what has been just affirmed. For there exists nothing more powerful than itself which can cause it to be moved (if there were, *that* would be more divine); nor has it any mean attribute; nor is it deficient in any of the perfections belonging to its nature. Its unceasing motion too is easily explained. For all things cease to be moved, when they come into their own place; but with the circular or revolving body the place in which it begins and in which it ends is the same (ss. 8–10).

CH. 10.—We shall next discuss whether the *Kosmos* be generable or ungenerable, and perishable or imperishable; noticing what others have said on the subject before. All of them consider the *Kosmos* to be generated: but some think it (although generated) to be eternal; others look upon it as perishable, like other natural compounds; others again—Empedokles and Herakleitus—declare it to be generated and destroyed in perpetual alternation. Now to affirm that it is generated and yet that it is eternal, is an impossibility: we cannot reasonably affirm any thing, except what we see to happen with all things or with most things; and, in the case before us, what happens is the very reverse of the foregoing affirmation, for all things generated are seen to be destroyed. Again, that which has no beginning of being as it is now—that which cannot possibly have been otherwise previously throughout the whole *Æon*—can never by any possibility change; for, if it could ever change, there must exist some cause, which,

if it had existed before, would have compelled what is assumed to be incapable of being otherwise, to be otherwise. To those who say that the Kosmos has come together from materials previously existing in another condition, we may reply: If these materials were always in this prior condition and incapable of any other, the Kosmos would never have been generated at all; and, if it *has* been generated, we may be sure that the antecedent materials must have been capable of coming into another condition, and were not under a necessity to remain always in the same condition; so that aggregations once existing were dissolved, and disgregations brought into combination, many times over before the present Kosmos; at least they possibly may have been so: and this is enough to prove that the Kosmos is not indestructible (ss. 1-3).

Among those who maintain the Kosmos to have been generated yet to be indestructible, there are some who defend themselves in the following manner. They tell us that the generation of which they speak is not meant to be affirmed as a real past fact, but is a mere explanatory or illustrative fiction, like the generation of a geometrical figure, introduced to facilitate the understanding by pupils. But such an analogy cannot be admitted. For in geometry the conclusions are just the same, if we suppose all the figures existing simultaneously; but it is not so with the demonstrations which they tender about the generation of the Kosmos, where the antecedent condition and the consequent condition are the reverse of each other. Out of disorder (they tell us) things came into order: these two conditions cannot be simultaneous; generation must be a real fact, and distinction of time comparing the one condition with the other; whereas in geometrical figures no distinction of time is required (ss. 4-6).

To assume alternate generation and dissolution, over and over again, is in fact to represent the Kosmos as eternal, but as changing its form; as if you should suppose the same person to pass from boyhood to manhood and then back again from manhood to boyhood—calling that by the name of generation and destruction. For, if the elements come together, the aggregation resulting will not be accidental and variable but always the same, especially upon the assumptions of these philosophers. So that, if the whole Kosmos, remaining continuous, is sometimes arranged in one way, sometimes in another, it is these arrangements which are generated and destroyed, not the Kosmos itself (ss. 7, 8).

Total generation, and total destruction without any renovation, of Kosmos might be possible, if there were an infinity of Kosmi, but cannot be possible with only one; for anterior to the moment

of generation there existed the antecedent condition, which, never having been generated, could not be destroyed (s. 9).

There are some who think (with Plato in *Timæus*) that the non-generable may yet be destroyed, and that the generated may be indestructible. We have combated this opinion on physical grounds, respecting the Heaven specially. We shall now treat the subject upon universal reasonings (*i.e.*, belonging to Logic or Metaphysics —πρὸς οὓς φυσικῶς μὲν περὶ τοῦ οὐράνου μόνον εἴρηται· καθόλου δὲ περὶ ἅπαντος σκεψαμένοις, ἔσται καὶ περὶ τούτου δῆλον—s. 10).

CH. 11.—In this reasoning, the first step is to point out that Generable and Non-Generable, Destructible or Indestructible, are words used in many different senses, which must be discriminated (*πολλὰ ὡς λεγόμενα*). If a man uses these words in an affirmative proposition without such discrimination, his affirmation is indeterminate; you cannot tell in which of their many different senses he intends to affirm. Non-Generable means: (1) That which now is, having previously not been, even though without either generation or change, as, to touch or to be moved; for, according to some persons, touching or being moved are not cases of generation: you cannot become touching, or become moved; you are moved, or you are not moved; you touch, or you do not touch (οὐ γὰρ εἶναι γίνεσθαι φασιν ἀπτόμενον, οὐδὲ κινούμενον. He means, I presume, that to touch, and to be moved, are instantaneous acts, though how they can be said to occur *ἄνευ μεταβολῆς*, I do not see.). It means: (2) That which, though capable of coming to pass or of having come to pass (*ἐνδεχόμενον γίνεσθαι ἢ γενέσθαι*), nevertheless is not; for this too is non-generable, since it might have come to be. Again, it means: (3) That which cannot by possibility sometimes exist, sometimes not exist. Impossible has two meanings: (1) That of which you cannot truly say that it might be generated (*οὐ γένοιτ' ἂν*); (2) That which cannot be generated easily, or quickly, or well (*καλῶς*). So also the Generable (*τὸ γεννητόν*) means: (1) That which, not existing previously, afterwards exists at one time and not at another, whether generated or not (he seems here to point to *τὸ ἀπτεσθαι* or *τὸ κινεῖσθαι*); (2) The possible, whether it be the strictly possible, or the easily possible; (3) That of which there is generation out of the non-existent into existence, whether it now does actually exist, or may exist hereafter. The Destructible and Indestructible (*φθαρτὸν καὶ ἀφθαρτόν*) have similar differences of meaning (ss. 1-6).

If we say that a man can raise a weight of 100 pounds, or march 100 stadia, we speak always with reference to a certain extreme, meaning to imply that he can also raise a weight of 50, 40, 30

pounds, and that he can also walk 50, 40, 30 *stadia*. If we say that he cannot raise a weight of 100 pounds, we mean to imply, *à fortiori*, that he cannot raise a weight of 110 pounds. In regard to sight and hearing, the case is opposite; he who can see a small object, can certainly see a large one; he who can hear a faint sound, can certainly hear a loud one. But he who can see a large object, is not necessarily able to see a small one; he who can hear a loud sound, is not necessarily able to hear a faint one. In sight and hearing, superior power is indicated by the less including the greater; in motion, by the greater including the less (ss. 7-8).

CH. 12.—If there are some things capable both of existence and of non-existence, we must define on which falls the major portion of time; for, if we cannot in either case define the time, and can only say that it is greater than any assumed length of time and never less than any assumed length,—the same thing will be capable both of existence and of non-existence for an infinite time; which is an impossibility. We must take our departure from this principle: Impossibility is one thing, Falsehood another. Both the impossible and the false are, however, either conditional (as when it is said to be impossible that the triangle should have its three angles equal to two right angles, if such and such things are granted, and that the diameter should be commensurate with the periphery, if such and such positions were true), or absolute. But there are matters absolutely false, which are not absolutely impossible. When you are standing, I affirm that you are sitting: this is absolutely false, but not absolutely impossible. On the other hand, if I affirm that you are at the same time sitting and standing, or that the diameter is commensurable with the periphery, the proposition is not merely absolutely false, but absolutely impossible. An assumption simply false is not the same thing as an assumption absolutely impossible: from an impossible assumption there follow other impossibilities. The power of sitting or standing means that you can do either one at any given time—one at one time, the other at another; but not that you can do both at the same time. But, if any thing has throughout an infinite time the power of doing more things than one, it must have the power of doing more things than one at the same time; for this infinite time comprehends its whole existence. Accordingly, if any thing existing for an infinite time is nevertheless destructible, this means that it has the possibility not to exist. This being a possibility, let us imagine it realized: then the thing in question will both exist actually for an infinite time and yet not exist; which is a consequence not only false, but impossible, and thus proves the premiss assumed to be impossible (*i. e.*, that a thing existing for an

infinite time is nevertheless destructible). We thus see that what exists always is absolutely indestructible (ss. 1-3). It is also ungenerable; for, if generable, there will be a possibility that at some time or other it did not exist. That is generable, which may possibly have not existed at some anterior time, finite or infinite: so that, if τὸ ἀεὶ ὄν cannot possibly not exist, it cannot be generable. Now that which is always possible to exist, has, for its correlate negative (ἀπόφασις), that which is not always possible to exist; and that which is always possible not to exist, has, for its contrary, that which is not always possible not to exist. These two negatives must of necessity be true of the same subject: there must be something of which we may truly say—It has no possibility always to exist—It has no possibility always not to exist. This therefore is something intermediate between that which always exists, and that which always exists not, viz., That which may exist and may not exist (καὶ εἶναι μέσον τοῦ ἀεὶ ὄντος καὶ τοῦ ἀεὶ μὴ ὄντος, τὸ δυνάμενον εἶναι καὶ μὴ εἶναι); for both the negative predicates will find application, if it do not exist always. The possible to exist, and the possible not to exist, must therefore be the same thing—a mean between the two above-mentioned extremes (ss. 4, 5).

After a long metaphysical deduction, occupying from sections 6 to 17, Aristotle proceeds as follows.

We may also discern in the following manner that nothing which has been once generated, can continue indestructible; nothing which is ungenerable and which always existed heretofore, can ever be destroyed. For it is impossible that any thing which arises spontaneously (ἀπὸ τοῦ αὐτομάτου) can be either indestructible or ungenerable. The Spontaneous, and the Casual (τὸ ἀπὸ τῆς τύχης), are in antithesis to the always or the most frequently Ens or Fiens (παρὰ τὸ ἀεὶ καὶ τὸ ὡς ἐπὶ τὸ πολὺ ἢ ὄν ἢ γινόμενον—s. 18); but that which has existed for an infinite or a very long time, must belong to this last category. Accordingly, such things must by nature sometimes exist, sometimes not exist. In them, both sides of the contradiction are alike true, owing to the matter of which they are composed: they exist, and they do not exist. But you cannot say with truth now that the thing exists last year; nor could you say last year that it exists now. Having once been non-existent, it cannot be eternal for future time; for it will still possess in future time the possibility of non-existence, yet not the power of non-existing at the moment when it does exist, nor with reference to last year and to past time; there being no power bearing upon past time, but only on present and future time. (Sections 21 and 22 are hardly intelligible to me.)

On physical grounds also it appears impossible that what is eternal in the past should be destroyed afterwards, or that what did not exist at some former time should afterwards be eternal. Those things which are destructible, are all of them generable and changeable (γεννητὰ καὶ ἀλλοιωτὰ πάντα). Those things which exist by nature, are changed by their opposites and by their component materials, and are destroyed by the same agencies (s. 23).

BOOK II.

CH. 1.—The Heaven has not been generated nor can it be destroyed, as some (Plato) affirm: it is one and eternal, having neither beginning nor end of the whole *Æon*, holding and comprehending in itself infinite time. This we may believe not merely from the foregoing reasonings, but also from the opinion of opponents who suppose the *Kosmos* to be generated. For, since their opinion has been shown to be inadmissible, and our doctrine is at least admissible, even thus much will have great force to determine our faith in the immortality and eternity of the Heaven. Hence we shall do well to assist in persuading ourselves that the ancient doctrines, and especially those of our own country, are true—That there is among the substances endowed with motion one immortal and divine, whose motion is such that it has itself no limit but is rather itself the limit of all other motions, limit being the attribute of the circumscribing substance. The circular motion of the Heaven, being itself perfect, circumscribes and comprehends all the imperfect motions which are subject to limit and cessation. It has itself neither beginning nor end, but is unceasing throughout infinite time: in regard to other motions, it is the initiatory cause to some, while it is the recipient of the cessation of others (ss. 1, 2).

The ancients assigned Heaven to the Gods, as the only place which was immortal, and our reasonings show that it is not merely indestructible and ungenerable, but also unsusceptible of all mortal defect or discomfort. Moreover it feels no fatigue, because it is not constrained by any extraneous force to revolve contrary to its own nature: if it were so, that would be tiresome, and all the more since the motion is eternal; it would be inconsistent with any supremely good condition. The ancients therefore were mistaken in saying that the Heaven required to be supported by a person named *Atlas*: the authors of this fable proceeded upon the same supposition as recent philosophers; regarding the celestial body as heavy and earthy, they placed under it, in mythical guise, an ani-

mated necessity (*ἀνάγκην ἑμψυχον*), or constraint arising from vital force. But they are wrong; and so is Empedokles, when he says that the Heaven is kept permanently in its place by extreme velocity of rotation, which counteracts its natural inclination downwards (*οἰκείας ῥοπῆς*). Nor can we reasonably suppose that it is kept eternally in its place (i.e., contrary to its own nature) by the compulsion of a soul or vital force (*ὑπὸ ψυχῆς ἀναγκαζούσης*): it is impossible that the life of a soul thus acting can be painless or happy. The motion which it causes, being accompanied with violence and being also perpetual (as it is the nature of the First Body to cause motion continuously throughout the Kosmos), must be a tiresome duty, unrelieved by any reasonable relaxation; since this soul enjoys no repose, such as the letting down of the body during sleep affords to the soul of mortal animals, but is subjected to a fate like Ixion's—ceaseless and unyielding revolution. Now our reasonings, if admissible, respecting the First or Circular Motion (*πρώτης φαρᾶς*) afford not merely more harmonious conceptions respecting its eternity, but also the only way of speaking in language which will be allowed as consistent with the vague impressions respecting the Deity (*τῇ μαντείᾳ τῇ περὶ τὸν θεόν*). Enough, however, of this talk for the present (ss. 3-6).

CH. 2.—Since the Pythagoreans and others recognize a Right and Left in the Heaven, let us enquire whether such *ἀρχαί* can properly be ascribed to the body of the Universe; for, if these can be ascribed, much more may the other *ἀρχαί* prior to them be ascribed to it. Of *ἀρχαὶ κινήσεως* (*termini a quibus*), there are three couples: (1) Upwards and Downwards; (2) Forward and Backward; (3) Right and Left. All the three exist in animals; but the first alone is found in plants. All the three are in all perfect bodies, and in all animated bodies which have in themselves a beginning of motion; but not in inanimate bodies, which have not in themselves a beginning. Each of these three *ἀρχαί* or *διαστάσεις* is true and appropriate as an attribute; but among the three, Upwards and Downwards comes first in the order of nature, Right and Left, last. The Pythagoreans are to be blamed for dwelling on Right and Left, and not noticing the other two pairs which are prior in the order of nature and more appropriate, and for supposing that Right and Left are to be found in every thing. Upward is the principle of length; Right, of breadth; Forward, of depth. Again, from upward movement comes growth; movement from the right is local movement; movement from before is movement of sense (*ἢ κατὰ τὴν αἰσθησιν*), or the line in which sensible impressions are propagated (*ἐφ' ᾧ αἱ αἰσθήσεις*).

Up is the source from whence motion originates (τὸ δθεν ἡ κίνησις —s. 6); Right, the point from which the direction of the motion starts; Forward, the point towards which it goes (τὸ ἐφ' ὃ). In inanimate bodies (which are either not moved at all, or only moved in one manner and direction, as fire only upwards, earth only downwards), we speak of above and below, right and left, only with reference to ourselves, and not as attributes really belonging to these objects; for by inverting the objects these attributes will be inverted also, right will become left, and left will become right. But in animated objects, which have in themselves an ἀρχὴ κινήσεως, a real right and left, a real upward and downward, are to be recognized; of course therefore in the Heaven, which is an animated object of this character (ζῶον). For we must not make any difficulty in consequence of the spherical figure of the universe, or suppose that such a figure excludes real right and left, the parts being all alike and all in perpetual motion. We must conceive the case as like that of a person having a real right and left, distinct in attributes, but who has been enclosed in a hollow sphere: he will still have the real distinct right and left, yet to a spectator outside he will appear not to have it. In like manner, we must speak of the Heaven as having a beginning of motion; for, though its motion never did begin, yet there must be some point from which it would have taken its departure, if it ever had begun, and from which it would recommence, if it ever came to a standstill. I call the length of the Heaven, the distance between the poles—one of the poles above, the other below. Now the pole which is above us, is the lower pole; that which is invisible to us, is the upper pole. For that is called right, in each object, from whence local movement takes its departure, or where local movement begins. But the revolution of the Heaven begins on the side where the stars rise; this, therefore, is the true right, and the side on which they set, is left. If, therefore, it begins from the right, and revolves round to the right (ἐπὶ τὰ δεξιά περιφέρεται), the invisible pole must be the upper pole; for, if the visible pole were the upper, the movement of the Heaven would be to the left, which we deny to be the fact. The invisible pole is therefore the upper, and those who live near it are in the upper hemisphere, and to the right (πρὸς τοῖς δεξιόις); we on the contrary are in the lower hemisphere, and to the left. The Pythagoreans are in error when they say that we are in the upper hemisphere, and to the right, and that inhabitants of the southern hemisphere are in the lower hemisphere and to the left. But, speaking with reference to the second revolution (τῆς δευτέρας περι-

φωρᾶς) or that of the planets, which is in the contrary direction to the first revolution or that of the First Heaven, it is we who are in the upper hemisphere and on the right side; it is the inhabitants of the southern hemisphere, who are in the lower hemisphere and on the left side: that is, it is we who are on the side of the beginning of motion, they who are on the side of the end (ss. 1-10).

CH. 3.—I have previously laid it down, that circular movement is not opposite to circular. But, if this be the case, what is the reason that there are many different revolutions in the Heaven? This is what I shall now enquire, fully aware of the great distance from which the enquiry must be conducted (*πρόπρωθεν*)—not so much a distance in place, as owing to the small number of accompanying facts which can be observed by the senses respecting them.

The cause must be looked for in this direction. Every thing which performs a work, exists for the sake of that work. Now the work of Deity is immortality, or eternal life; so that the divine substance must of necessity be in eternal motion. The Heaven is a divine body, and has for that reason the encyclical body, whose nature it is to be moved for ever in a circle. But why is not the whole body of the Heaven thus constituted (*i.e.*, encyclical)? Because it is necessary that some portion of its body should remain stationary in the centre; and no portion of the encyclical body can possibly remain stationary, either in the centre or elsewhere. For, if it could, its natural motion (*i.e.*, the motion of that supposed portion) would be towards the centre; whereas its natural motion is circular; and it cannot move towards the centre contrary to its nature, because on that supposition its motion would not be eternal: no motion contrary to nature can be eternal. Moreover that which is contrary to nature is posterior to that which is natural; it is a deviation therefrom arising in the course of generation (s. 1).

Hence it is necessary that earth should exist, the nature of which it is to rest in the centre (*i.e.*, the divine encyclical body will not suffice alone, without adjuncts of different nature). I assume this for the present; more will be said about it anon.

But, if earth exists, fire must exist also; for of two contraries, if the one exist by nature, the other must exist by nature also. For the matter of contraries is the same, and Form (positive and affirmable) is prior by nature to Privation (for example, hot is prior to cold); now rest and gravity denote the privation of motion and lightness (s. 2—*i.e.*, fire is even prior in nature to earth, as having the positive essences motion and levity, while earth has for its essence the privation thereof).

Again, if fire and earth exist, the two other elements intermediate between them must also exist; for each of the four elements has its peculiar mode of contrariety with reference to each. At least let this be assumed now: I shall show it at length presently.

Now, these points being established, we see that generation must necessarily come to pass, because no one of the four elements can be eternal: they act upon each other, and suffer from each other, with contrary effects; they are destructive of each other. Besides, each of them has a mode of motion natural and appropriate to it, but this mode of motion is not eternal (because it is either to the centre or to the circumference and therefore has a natural terminus). It is not reasonable to suppose that any Mobile can be eternal, whose natural mode of motion cannot be eternal (s. 3).

Thus the four elements are not eternal, but require to be renewed by generation; therefore generation must come to pass. But, if generation be necessary, more than one revolution of the celestial body is indispensably required: two at least, if not more. For, if there were no other revolution except that of the First Heaven, that is consistent only with a perfectly uniform condition of the four elements in relation to each other (s. 4).

When the question is asked, therefore, Why there are (not one only but) several encyclical bodies? I answer: Because generation *must* come to pass. There must be generation, if there be fire; there must be fire and the other elements, if there be earth; there must be earth, because something must remain stationary eternally in the centre, if there is to be eternal revolution (s. 5).

CH. 4.—The Heaven is by necessity spherical: this figure is at once both most akin to its essence and first in its own nature. I shall begin with some observations respecting figures generally—plane and solid, as to which among them is the first. Every plane figure is either rectilinear or curvilinear; the former is comprehended by many lines, the latter only by one. Now, since in every department one is prior to many and simple to compound, the first of all plane figures must be the circle. Moreover, since that is perfect which can receive nothing additional from without, and since addition can be made to every straight line, but none whatever to the line circumscribing a circle, it is plain that this latter is perfect; and therefore the circle is the first of all plane figures, and the sphere of all solid figures (ss. 1, 2). This doctrine appears most reasonable when we set out the different figures, each with a number belonging to it in numerical order. The circle corresponds to One, the triangle to Two, since its three angles are equal to two right angles; whereas, if we assign number One to the

triangle and place that first, we can find no number fit for the circle: the circle will be no longer recognized as a figure (s. 4).

Now, since the first figure belongs to the first body, which is that in the extreme or farthest circumference, this body which revolves constantly in a circle, will be spherical in figure. That which is continuous with it even to the centre, will also be spherical; and all the interior parts are in contact and continuity with it: the parts below the sphere of the planets touch the sphere above them. So that the whole revolving current, interior and exterior, will be spherical; for all things touch and are continuous with the spheres (s. 5).

There is another reason too why the universe is spherical in figure, since it has been shown to revolve in a circle. I have proved before that there exists nothing on the outside of the universe; neither place nor vacuum. If the figure of the Kosmos, revolving as it does in a circle, were any thing else but spherical—if it were either rectilinear or elliptical—it could not possibly cover exactly the same space during all its revolutions: there must therefore be place and vacuum without it; which has been shown to be impossible (s. 6).

Farthermore, the rotation of the Heaven is the measure of motions, because it is the only one continuous and uniform and eternal. Now in every department the measure is the least, and the least motion is the quickest; accordingly the rotation of the Heaven will be the quickest of all motions (s. 7). But among all curved lines from the same back to the same, the circumference of the circle is the shortest, and motion will be quickest over the shortest distance. Accordingly, since the Heaven revolves in a circle and with the quickest of all motions, its figure must be spherical (s. 8).

We may also draw the same conclusion from the bodies fixed in the central parts of the Kosmos. The Earth in the centre is surrounded by water; the water, by air; the air, by fire. The uppermost bodies surround the fire, following the like proportion or analogy; being not continuous therewith, but in contact therewith. Now the surface of water is spherical; and that which is either continuous with the spherical or surrounds the spherical, must itself be spherical also (s. 9). That the surface of the water is truly spherical, we may infer from the fact, that it is the nature of water always to flow together into the lowest cavities, that is, into the parts nearest to the centre (s. 10).

From all the foregoing reasonings, we see plainly that the Kosmos is spherical, and moreover turned with such a degree of exact

sphericity (κατὰ ἀκρίβειαν ἔντροπος οὕτως), that no piece of human workmanship nor any thing ever seen by us on earth can be compared to it. For none of the component materials here on earth is so fit for receiving perfect level and accuracy as the nature of the First or Peripheral Body; it being clear that, in the same proportion as water is more exactly spherical, the elements surrounding the water become more and more spherical in proportion as they are more and more distant from the centre (s. 11).

CH. 5.—Circular revolution may take place in two directions; from the point A on one side towards B, or on the other side towards C. That these two are not contrary to each other, I have already shown. But, since in eternal substances nothing can possibly take place by chance or spontaneity, and since both the Heaven and its circular revolution are eternal, we may enquire what is the reason why this revolution takes place in one direction and not in the other. This circumstance either depends upon some first principle, or is itself a first principle (s. 1). Perhaps some may consider it a mark either of great silliness, or great presumption, to declare any positive opinion at all upon some matters, or upon all matters whatever, leaving out nothing. But we must not censure indiscriminately all who do this: we must consider what is the motive which prompts each person to declare himself, and with what amount of confidence he affirms, whether allowing for human fallibility or setting himself above it. Whenever a man can find out exact and necessary grounds for the conclusions which he propounds, we ought to be grateful to him: here we must deliver what appears to be the truth. Nature (we know) always does what is best among all the practicable courses. Now the upper place is more divine than the lower, and accordingly among rectilinear currents, that which is directed upwards is the more honourable. In the same manner, the current forwards is more honourable than backwards; and the current towards the right more honourable than that towards the left—as was before laid down. The problem above started indicates to us that there is here a real Prius and Posteriorius—a better and a worse; for, when we recognize this, the difficulty is solved. The solution is that this is the best practicable arrangement, viz., that the Kosmos is moved in a motion, simple, never-ending, and in the most honourable direction (ἐπὶ τὸ τιμώτερον, s. 2).

CH. 6.—I have now to show that this motion of the First Heaven is uniform and not irregular (ὁμαλῆς καὶ οὐκ ἀνόμαλος): I speak only of the First Heaven, and of the First Rotation; for in the substances lower than this many rotations or currents have coa-

leased into one. If the motion of the First Heaven be irregular, there will clearly be acceleration and remission of its motion, and an extreme point or maximum (*ἀκμή*) thereof. Now the maximum of motion must take place either at the terminus *ad quem*, as in things moved according to nature; or at the terminus *a quo*, as in things moved contrary to nature; or during the interval between, as in things thrown (*ἐν τοῖς ῥιπτομένοις*). But in circular motion, there is neither terminus *a quo*, nor terminus *ad quem*, nor middle between the two—neither beginning, nor end, nor mean; for it is eternal in duration, compact as to length or space moved over, and unbroken (*τῷ μήκει συνεγμένη καὶ ἄκλαστος*). It thus cannot have any maximum or acceleration or remission; and of course, therefore, it cannot be irregular (s. 1).

Besides, since every thing that is moved is moved by some thing, the irregularity, if there be such, must arise either from the Movers, or the Motum, or both: the power of the Movers, or the quality of the Motum, or both, must undergo change. But nothing of the sort can happen with the Motum, being in this case the Heaven; for it has been shown to be a First, simple, ungenerable, indestructible, and in every way unchangeable. Much more then is it reasonable to believe that the Movers is such; for that which is qualified to move the First, must be itself a First (*τὸ γὰρ πρῶτον τοῦ πρώτου κινητικόν*); that which is qualified to move the simple, must be itself simple, &c. If then the Motum, which is a body, undergoes no change, neither will the Movers, being as it is incorporeal (s. 2). Accordingly the current, or motion (*φορά*), cannot possibly be irregular. For, if it comes to pass irregularly, its irregularity either pervades the whole, the velocity becoming alternately more or less, or certain parts only. But, in regard to the parts separately, there is certainly no irregularity: if there had been, the relative distances of the stars one from the other would have varied in the course of infinite time; now no such variation in their distances has ever been observed. Neither in regard to the whole is there any irregularity. For irregularity implies relaxation, and relaxation arises in every subject from impotence. Now impotence is contrary to nature: in animals, all impotences (such as old age or decay) are contrary to nature; for all animals, perhaps, are compounds put together out of elements each of which has a different place of its own and not one of which is in its own place. In the First Bodies, on the other hand, which are simple, unmixed, in their own places, and without any contrary, there can be no impotence, and therefore neither relaxation nor intensification, which always go together (*εἰ γὰρ ἐπίτασις, καὶ ἀνεσις,*

a. 3). Besides, we cannot with any reason suppose that the *Movens* is impotent for an infinite time, and then again potent for an infinite time: nothing contrary to nature lasts for an infinite time, and impotence is contrary to nature; nor can it be for an equal time contrary to nature and agreeable to nature—impotent and potent. If the motion relaxes, it cannot go on relaxing for an infinite time, nor go on being intensified, nor the one and the other alternately. For in that case the motion would be infinite and indeterminate; which is impossible, since every motion must be from one term to another term and also determinate (a. 4: *ἄπειρος γὰρ ἂν εἴη καὶ ἀόριστος ἡ κίνησις. ἅπασαν δὲ φάμεν ἔκ τινος εἰς τι εἶναι, καὶ ὁρισμένην*—i.e., all motion must be determined both in distance and direction).

Again, the supposition may be made that there is a minimum of time required for the revolution of the Heaven, in less than which the revolution could not be completed; just as there is a minimum of time indispensable for a man to walk or play the harp. Admitting this supposition, there cannot be perpetual increase in the intensity or velocity of the motion (the increase has an impassable limit), and therefore there cannot be perpetual relaxation; for both are on the same footing (s. 5).

It might be urged, indeed, that intensification and relaxation go on alternately; each proceeding to a certain length, and then giving place to the other. But this is altogether irrational—nothing better than a gratuitous fiction. Besides, if there were this alternation, we may reasonably assume that it could not remain concealed from us; for contrasting conditions coming in immediate sequence to each other are more easily discerned by sense. What has been said, then, is sufficient to prove—That the Heaven or Kosmos is one and only one; that it is ungenerable and eternal; that its motion is uniform (s. 6).

CH. 7.—Next in order, I have to speak of what are called the Stars (*τῶν καλουμένων ἀστρων*). Of what are they composed? What is their figure? What are their motions?

It is consistent with the foregoing reasonings, as well as in itself the most rational doctrine, to conceive each of the stars as composed of portions of that body in which its current of motion takes place; that is, of that body, whose nature it is to move in a circle. For those who affirm the stars to be fire say this because they believe the upper body to be fire, assuming it as reasonable that each thing should be composed of the elements in which it is; and I assume the same also (s. 1). The heat and light of the stars arises from their friction with the air in their current of motion.

If it is the nature of motion to inflame pieces of wood, and stones, and iron, it is still more reasonable that what is nearest to fire (that is, air) should be so inflamed. We see that darts projected are so inflamed, that their leaden appendages are melted; and, these being thus inflamed, the air around them must be modified in the same manner. Now objects like these darts are thus violently heated, because they are carried along in the medium of the air, which through the shock given by their motion becomes fire. But each of the upper bodies or stars is carried round (not in the air, but) in its appropriate sphere, so that they themselves are not inflamed; while the air which is under the sphere of the encyclical body becomes of necessity heated by the rotation of that sphere; and most of all at the point where the Sun has happened to be fastened in (καὶ ταύτῃ μάλιστα, ἣ ὁ ἥλιος τετύχηκεν ἐνδεδεμένος).

Let it then be understood, that the stars are neither composed of fire, nor are they carried round in the medium of the fire (s. 2).

CH. 8.—It is seen as a fact, that both the stars, and the entire Heaven, change their place (μεθιστάμενα). Now, in this change, we must assume either that both continue at rest, or that both are in motion, or that one is at rest and the other is in motion. Now it is impossible that both can be at rest, at least if we assume the earth to be at rest; for the facts which we see would not have taken place, upon that supposition (s. 1). Either therefore both are in motion, or one is in motion and the other at rest. Now, if both are in motion, it is against reason that the stars and the circles in which they are fastened should have equal velocities of motion. Each one of them must be equal in velocity to the circle or sphere in which it is carried, since all come back round along with their circles to the same position; so that in one and the same time, the star has gone round its circle, and the circle has completed its revolution. It is not reasonable to suppose that the velocities of the stars and the magnitudes of the circles should be in the same proportion. Comparing one circle with another, indeed, it is not only not absurd, but even necessary, that the velocities should be in proportion to the magnitudes; but it is not reasonable that each of the stars in these circles should be of such velocity. For, if it be necessary that what is carried round in the larger circle should have the greater velocity, the consequence would be that, if the stars in one circle were transferred to another, their motions would become accelerated or retarded; which is equivalent to saying that they have no motion of their own at all, but are carried round by the revolution of the circles (s. 2). If, on the contrary, it be not necessary, but a spontaneous coincidence (εἴτε ἀπὸ ταύτοματου συνέ-

περὶ) that what is carried round in the greater circle has the greater velocity, neither upon this supposition is it reasonable that in all the circles without exception the circumference should be greater, and the motion of the star fastened in the greater circle quicker, in the same proportion. That this should happen with one or two of them, might be reasonably expected; but that it should happen with all alike, savours of fiction. Moreover chance has no place in matters according to nature; nor is that which occurs everywhere and belongs to all, ever the produce of chance (s. 3).

So much for the hypothesis, that both stars and circles are in motion. Let us now assume that one is at rest, and the other in motion; and first, let the circles be at rest, and the stars in motion. This again will lead to absurdities; for we shall still be unable to explain how it happens that the outermost stars are moved most quickly, and that their velocities are proportioned to the magnitudes of the circles.

Since then we cannot assume either that both are moved, or that the star alone is moved, we must adopt the third supposition, that the circles are moved, and that the stars, being themselves at rest, are fastened in the circles and carried round along with them. This is the only hypothesis which entails no unreasonable consequences. For it is reasonable that, of circles fastened round the same centre, the greater velocity should belong to the greatest. For, as in all the varieties of body the heavier fragment is carried with greater velocity than the lighter in its appropriate motion, so it happens with the encyclical body. When two straight lines are drawn from the centre, the segment of the greater circle intercepted between them will be greater than the segment of the smaller; and it is consistent with reason that the greater circle should be carried round in equal time. This is one reason why the Kosmos is not split into separate parts; another reason is, because the universe has been shown to be continuous (ss. 4, 5).

Now we all agree that the stars are of spherical figure; and spherical bodies have two motions of their own—rolling and rotatory (κύλισις καὶ δίνησις). If they were moved of themselves, they would be moved in one or other of these two ways; but we see that they are so in neither. They do not rotate; for, if they did, they would remain always in the same place, which contradicts universal observation and belief. Besides, it is reasonable to suppose that all the stars move in the same manner, but the Sun is the only one that is seen so to move, when he rises or sets; and he too, not by any movement of his own, but through the distance of our vision, which when stretched to a great distance rotates from weakness (s. 6).

This is perhaps the reason why the stars fastened (in the outer sphere) twinkle, while the planets do not twinkle; for the planets are near to us, so that our vision reaches them while yet strong; whereas in regard to the unmoved stars it is made to quiver in consequence of the great distance from being stretched out too far, and its quivering causes the appearance of motion in the star. For there is no difference between moving the vision and moving the object seen (*οὐθεν γὰρ διαφέρει κινεῖν τὴν ὄψιν ἢ τὸ ὁρώμενον*—s. 6).

Again, neither do the stars roll nor revolve forward. For that which rolls forward must necessarily turn round; but the same side of the moon—what is called the face of the moon—is always clearly visible to us (s. 7).

Since it is reasonable to believe, therefore, that, if the stars were moved in themselves, they would be moved in their own special variety of motion (i.e., rolling or rotatory), and since it has been shown that they are not moved in either of these two ways, we see plainly that they cannot be moved in themselves (but are carried round in the revolution of the *Aplanēs*).

Besides, if they were moved in themselves, it is unreasonable that Nature should have assigned to them no organ suitable for motion, since Nature does nothing by haphazard; and that she should have been considerate in providing for animals, while she overlooked objects so honourable as the stars. The truth rather is, that she has withheld from them, as it were by express purpose, all aids through which it was possible for them to advance forward in themselves, and has placed them at the greatest possible distance from objects furnished with organs for motion (s. 8).

Hence it would seem to be the reasonable doctrine—That the entire Heaven is spherical, and that each of the stars (fastened in it) is also spherical. For the sphere is the most convenient of all figures for motion in the same place, so that the Heaven being spherical would be moved most rapidly and would best maintain its own place. But for forward motion the sphere is of all figures the most inconvenient; for it least resembles self-moving bodies: it has no outlying appendage or projecting end, as rectilinear figures have, and stands farthest removed from the figures of marching bodies.

Since therefore it is the function of (*δεῖ*) the Heaven to be moved by a motion in the same place (*κινεῖσθαι τὴν ἐν αὐτῷ κίνησιν*), and that of the stars not to make any advance by themselves (*τὰ ἄλλα δ' ἄστροα μὴ προΐεναι δι' αὐτῶν*), it is with good reason that both of them are spherical. For thus will the Heaven best be moved, and the stars will best be at rest.

CH. 9.—From what I have said, it is plain that those who affirm that the revolving celestial bodies emit in their revolutions sounds harmonious to each other, speak cleverly and ingeniously, but not consistently with the truth. There must necessarily be sound (they say) from the revolution of such vast bodies. Since bodies near to us make sound in motion, the sun, moon, and stars, being so much larger and moving with so much greater velocity, must make an immense sound; and, since their distances and velocities are assumed to be in harmonic proportion, the sounds emitted in their revolution must also be in harmony. To the question put to them—Why do we not hear this immense sound? they reply, that we have been hearing it constantly from the moment of our birth; that we have no experience of an opposite state, or state of silence, with which to contrast it, and that sound and silence are discriminated only by relation to each other (*ὥστε μὴ διάδηλον εἶναι πρὸς τὴν ἐναντίαν σιγὴν· πρὸς ἄλληλα γὰρ φωνῆς καὶ σιγῆς εἶναι τὴν διάγνωσιν*); that men thus cease to be affected by it, just as blacksmiths from constant habit cease to be affected by the noise of their own work (s. 1).

The reasoning of these philosophers (the Pythagoreans), as I have just said, is graceful and poetical, yet nevertheless inadmissible. For they ought to explain, upon their hypothesis, not merely why we hear nothing, but why we experience no uncomfortable impressions apart from hearing. For prodigious sounds pierce through and destroy the continuity even of inanimate bodies; thus thunder splits up stones and other bodies of the greatest strength. The impression produced here by the sound of the celestial bodies must be violent beyond all endurance. But there is good reason why we neither hear nor suffer any thing from them; viz., that they make no sound. The cause thereof is one which attests the truth of my doctrine laid down above—That the stars are not moved of themselves, but carried round by and in the circle to which they are fastened. Bodies thus carried round, make no sound or shock: it is only bodies carried round of themselves that make sound and shock. Bodies which are fastened in, or form parts of, a revolving body, cannot possibly sound, any more than the parts of a ship moving, nor indeed could the whole ship sound, if carried along in a running river. Yet the Pythagoreans might urge just the same reasons to prove that bodies so large as the mast, the stern, and the entire ship, could not be moved without noise. Whatever is carried round, indeed, in a medium not itself carried round, really makes sound; but it cannot do so, if the medium itself be carried round continuously. We must

therefore in this case maintain that, if the vast bodies of the stars were carried round in a medium either of air or of fire (whose motion is rectilinear), as all men say that they are, they must necessarily make a prodigious sound, which would reach here to us and would wear us out (*διακναίειν*). Since nothing of this nature occurs, we may be sure that the stars are not carried round in a current of their own, either animated or violent. It is as if Nature had foreseen the consequence, that, unless the celestial motions were carried on in the manner in which they are carried on, nothing of what now takes place near us (*τῶν περὶ τὸν δέυρο τόπον*) could have been as it is now. I have thus shown that the stars are spherical, and that they are not moved by a motion of their own (ss. 2-5).

CH. 10.—Respecting the arrangement of the stars—how each of them is placed, some anterior others posterior, and what are their distances from each other—the books on astronomy must be consulted and will explain. It consists with the principles there laid down, that the motions of the stars (planets) should be proportional to their distances, some quicker, others slower. For, since the farthest circle of the Heaven has a revolution both simple and of extreme velocity, while the revolutions of the other stars (planets) are many in number and slower, each of them being carried round in its own circle in the direction contrary to that of the first or farthest circle of the Heaven, the reasonable consequence is, that that planet which is nearest to the first and simple revolving circle takes the longest time to complete its own (counter-revolving) circle, while that which is most distant from the same circle takes the shortest time, and the remaining planets take more or less time in proportion as they are nearer or farther. For the planet nearest to the first revolving circle has its own counter-revolution most completely conquered or overpowered thereby; the planet farthest from the same, has its own counter-revolution least conquered thereby; and the intermediate planets more or less in inverse proportion to their distances from the same, as mathematicians demonstrate.

CH. 11.—We may most reasonably assume the figure of the stars to be spherical. For, since we have shown that it is not their nature to have any motion of their own, and since Nature does nothing either irrational or in vain, it is plain that she has assigned to the immovables that figure which is least fit for motion; which figure is the sphere, as having no organ for motion. Besides, what is true of one is true of all (*ἐν δ' ὁμοίως μὲν ἅπαντα καὶ ἓν*): now the Moon may be shown to be spherical, first, by the visible mani-

festations which she affords in her waxings and wanings, next from astronomical observations of the eclipses of the Sun. Since therefore one among the stars is shown to be spherical, we may presume that the rest will be so likewise.

CH. 12.—I proceed to two other difficulties, which are well calculated to perplex every one. We must try to state what looks most like truth, considering such forwardness not to be of the nature of audacity, but rather to deserve respect, when any one, stimulated by the thirst for philosophy, contents himself with small helps and faint approximations to truth, having to deal with the gravest difficulties.

1. Why is it, that the circles farthest from the outermost circle (or Aplanês) are not always moved by a greater number of motions than those nearer to it? Why are some of the intermediate circles (neither farthest nor nearest) moved by a greater number of motions than any of the others? For it would seem reasonable, when the First Body is moved by one single rotatory current, that the one nearest to it should be moved by two, the next nearest by three, and so on in regular sequence to those which are more distant. But we find that the reverse occurs in fact: Sun and Moon have fewer movements than some of the planets, which are nevertheless farther from the centre, and nearer to the First Body. In regard to some of the planets, we know this by visual evidence; for we have seen the Moon when at half-moon passing under Mars, who was occulted by the dark part of her body, and emerged on the bright side of it. The like is attested respecting the other planets, by the Egyptians and Babylonians, the most ancient of all observers.

2. Why is it, that in the First Revolution (in the revolution of the First Heaven or First Body) there is included so vast a multitude of stars as to seem innumerable; while in each of the others there is one alone and apart, never two or more fastened in the same current?

Here are two grave difficulties, which it is well to investigate and try to understand, though our means of information are very scanty, and though we stand at so great a distance from the facts. Still, as far as we can make out from such data, these difficulties would not seem to involve any philosophical impossibility or incongruity. Now we are in the habit of considering these celestial bodies as bodies only; and as monads which have indeed regular arrangement, but are totally destitute of soul or vital principle. (When Aristotle here says *we*, he must mean the philosophers whose point of view he is discussing: for the general public certainly did

not regard the Sun, Moon, and stars as *ἄψυχα πάμπαν*, but, on the contrary, considered this as blamable heresy, and looked upon them as Gods.) We ought, however, to conceive them as partaking of life and action (*δεῖ δ' ὡς μετεχόντων ὑπολαμβάνειν πράξεως καὶ ζωῆς*); and in this point of view the actual state of the case will appear nowise unreasonable (s. 2). For we should naturally expect that to that which is in the best possible condition, such well-being will belong without any agency at all; to that which is next best, through agency single and slight; to such as are farther removed in excellence of condition, through action more multiplied and diversified. Just so in regard to the human body: the best constituted body maintains its good condition without any training at all; there are others which will do the same at the cost of nothing more than a little walking; there are inferior bodies which require, for the same result, wrestling, running, and other motions; while there are even others which cannot by any amount of labour attain a good condition, but are obliged to be satisfied with something short of it (s. 3). Moreover it is difficult to succeed in many things, or to succeed often: you may throw one or two sixes with the dice, but you cannot throw ten thousand; and, farther, when the conditions of the problem become complicated—when one thing is to be done for the sake of another, that other for a third result, and that third for a fourth, &c.—success, which may be tolerably easy when the steps are only few, the more they are multiplied, becomes harder and harder.

Hence we must consider the agency of the stars as analogous to that of plants and animals. For here the agency of man is most multifarious, since he is capable of attaining many varieties of good, and accordingly busies himself about many things and about one thing for the sake of others. The agency of other animals on the other hand is more restricted; that of plants yet more so, being of slight force and only of one special character (s. 4). But that which exists in the best possible condition stands in no need of acting or agency; for it already possesses that for the sake of which action is undertaken. Now action always includes two elements—that for the sake of which and what is for the sake thereof—the end and the means: there is either some one end, which the agent may attain, as in the case of man; or there are many different matters all of which may be used as means towards the best possible condition. Thus one agent possesses and partakes of the best possible condition; another comes near to it with little trouble; a third, with much trouble; a fourth does not even aspire to the end, but is competent only to arrive near to the last of the

means. For example, let health be the end: one man is always in health; a second becomes so, by being starved down; a third by that, combined with running exercise; a fourth is obliged to take some additional exercise, in order to qualify himself for running, so that his motions are multiplied; a fifth is incapable of arriving at health, but arrives only at the running and the being thinned down, one of which in this case serves as end. For it would be best for all, if they could attain the supreme end—health; but, if that be impossible, then the next best thing is to get as near to the best as possible (ss. 5–7).

For this reason the Earth is not moved at all, and the matters near the Earth are moved with few motions; since they do not arrive at the extreme best, but only as near as their ability permits to obtain or hit the supremely divine principle; while the First Heaven, on the contrary, obtains or hits it at once, through one single motion; and the bodies intermediate between the First Heaven and those which are last (or nearest to the Earth), obtain it or arrive at it also, but only through a greater number of motions.

There is the other difficulty also to be considered—that vast multitude of stars are put all together in the one single First Current or Revolution, but each of the other stars (planets) has its own motions singly and apart. The principal reason of this we may fairly suppose to be that it follows as a natural consequence from the vast superiority of the first, in each variety of life and in each beginning, over all posterior to the first. Here the First Current or Revolution, being one and by itself, moves many of the divine bodies, while the others (secondary or counter-currents), numerous as they are, move each only one; for each one of these wandering bodies or planets is carried by many different currents. Thus Nature establishes equalization and a sort of symmetry, by assigning, in the one case, many bodies to one current, and in the other, many currents to one body (ss. 8–10). Beside this principal reason, there is also another. The other currents have each one body only, because motion is given to many bodies by all of them prior to the last which bears the one star. For the last sphere is carried round fastened into many spheres, and each sphere is a body (ss. 11, 12. I do not clearly understand the lines that follow:—*ἐκείνης ἂν οὖν κοινὸν εἴη τὸ ἔργον· αὐτὴ μὲν γὰρ ἐκάστη ἢ ἴδιος φύσει φορά· αὐτὴ δὲ οἷον προσκεῖται. παντὸς δὲ πεπερασμένου σώματος πρὸς πεπερασμένον ἢ δύναμις ἐστίν.*)*

* [See Prantl's note on this difficult passage in his German translation of the De Cælo, p. 309 (Leipzig, 1857).]

CH. 13.—Having thus explained, respecting the Stars and Planets which are carried round in circular motion, what is their essence, figure, current, and order of position, we now proceed to speak of the Earth: What is its position? Whether is it at rest or in motion? What is its figure?

Philosophers differ respecting the position of the Earth. Most of those who conceive the entire Kosmos as finite, declare the Earth to be in its centre. But the Italian philosophers, called Pythagoreans, are of an opposite opinion; affirming that Fire is in the centre, and that the Earth, being one of the stars revolving round the centre, makes night and day. They assume moreover another Earth opposite to this (*ἐναντίαν ἄλλην ταύτην*)—which other they call *Antichthon*. Herein they do not adjust their theories and look out for causes adapted to the phenomena; but, on the contrary, they distort the phenomena so as to suit their own doctrines and reasonings, and try to constitute themselves auxiliary governors of the Kosmos (*περιώμενοι συγκοσμεῖν*—s. 1). And, if we are to look for assurance not to the phenomena but to our own reasonings, many others might agree with them, that it is not proper (*μὴ δεῖν*) to assign to the Earth the central place. They think that the most honourable place belongs to the most honourable body, and that Fire is more honourable than Earth; that the two extremes, centre and circumference, are more honourable than the parts intermediate between them. Upon these grounds they consider that Fire and not Earth is at the centre of the Universal Sphere; and they have another reason, peculiar to themselves, for this conclusion: they hold that the centre is the most important place in the universe, and that it ought as such to be the most carefully guarded; wherefore they call it the watch of Zeus (*Διὸς φυλακὴν*), and regard it as occupied by Fire (s. 2).

This assumes that what is absolutely (i. e., without subjoining any qualifying adjunct) described as *the centre*, is at once centre of the magnitude, centre of the object, and centre of nature. But we ought rather to follow the analogy of animals, where the same point is not the centre of the animal and the centre of the body: the case is the same in the entire Kosmos. Hence the Pythagoreans need not feel any anxiety about the universe (*οὐθὲν αὐτοῖς δεῖ θορυβεῖσθαι περὶ τὸ πᾶν*), nor introduce a guard at the centre. They ought rather to enquire where and of what character the middle point is; for that middle point is the true beginning and the honourable. The middle of the place occupied is rather like an end than like a beginning; for that which is limited is the middle, that which limits is the boundary: now that which comprehends and

is boundary, is more honourable than that which is bounded; the former is the Essence of the entire compound, the latter is only its Matter (s. 3).

As about the place of the Earth, so also about its motion or rest, philosophers differ. The Pythagoreans and those who do not even place it at the centre, consider it to revolve in a circle, and they consider the Antichthon to revolve in like manner. Some even think it possible that there may be many other bodies carried round the centre in like manner, though invisible to us, by reason of the obstructing body of the Earth. Hence (they say) the eclipses of the Moon are more frequent than those of the Sun; since not only the Earth, but also each of these unseen bodies, causes the Moon to be eclipsed. For, the Earth not being a point, we on the circumference thereof, even assuming it to occupy the centre, are distant from the centre by the entire hemisphere of the Earth; yet we do not find out that we are not in the centre, and astronomical appearances present themselves to us just as if we were so. Thus it happens (according to these philosophers), the Earth not being in the centre at all: the appearances presented to us are just the same as if we were at the centre.

Again, there are some who (like Plato in *Timæus*) affirm that the Earth, though situated in the centre, is packed and revolves round the axis stretched across the universe (s. 4).

About the figure of the Earth, there is no less difference of opinion. Some say that it is spherical; others, that it is flat and in shape like a tambourine (*τυμπανοειδής*). These last adduce as proof, that the Sun, at rising and setting, exhibits a rectilinear section or eclipse of his disk and not a circular one, when partially concealed by the Earth, and becoming invisible under the horizon or visible above the horizon. They do not take proper account of the vast distance of the Sun and the magnitude of his circumference. The segment of a long circle appears from a distance like a straight line. These philosophers further add, that the flat tambourine-like shape must be inferred of necessity from the fact that the Earth remains stationary (s. 5).

Upon this disputed question, a feeling of perplexity comes unavoidably upon every one. It would argue a very irrational mind not to wonder how a small piece of the Earth, if suspended in the air, is carried downward and will not stop of itself, and the larger piece is carried downward more quickly than the smaller; while nevertheless the entire Earth, if suspended in like manner, would not be so carried. In spite of its great weight, it remains stationary (s. 6). But the solutions of this problem which some

suggest are more strange and full of perplexity, and it is surprising that they have not been so considered. The Kolophonian Xenophanes affirmed that the lower depths of the Earth were rooted downwards to infinity, in order to escape the troublesome obligation of looking for a reason why it remained stationary. Others say, that the Earth rests upon water, floating thereupon like wood: this is an ancient doctrine promulgated by Thales; as if there were not as much perplexity about the water which supports the Earth, as there is about the Earth itself. For it is not the nature of water to remain suspended, but always to rest upon something (s. 7). Moreover, air is lighter than water, and water lighter than earth: how then can these men think that the substance naturally lighter can lie below the substance naturally heavier? Besides, if it were the nature of the whole Earth to remain resting on water, it must be the nature of each part of the Earth to do the same; but this does not happen: each part of the earth is carried down to the bottom, and the greater part more quickly than the less (s. 8).

All these philosophers carry their researches to a certain point, but not to the bottom of the problem. It is indeed a habit with all of us to conduct our enquiries not with reference to the problem itself, but with reference to our special opponents. If we have no opponent but are conducting our investigations alone, we pursue them as far as that point where we can make no farther objections to ourselves. Whoever therefore intends to investigate completely must take care to make objections to himself upon all the points of objection which really belong to the subject; and this he can only do after having thoroughly surveyed all the differences of opinion and doctrine (s. 9).

The reason why the Earth remains at rest, Anaximenes, Anaxagoras, and Demokritus, declare to be its breadth or flatness (τὸ πλάτος): it does not (they say) divide the air beneath, but covers over the air like a lid (οὐ γὰρ τέμνειν, ἀλλ' ἐπιπωματίζειν τὸν ἀέρα τὸν κάτωθεν); as we see that flat and spreading bodies usually do, being difficult to be moved and making strong resistance even against the winds. The Earth does the same, through its flatness, against the air beneath, which remains at rest there (in the opinion of these philosophers) because it finds no sufficient place into which to travel, like water in a *klepsydra*: they also produce many evidences to show that air thus imprisoned, while remaining stationary, can support a heavy weight (s. 10).

Now, in the first place, these men affirm that, unless the shape of the Earth were flat, it would not remain at rest. Yet on their own showing it is not alone the flat shape of the earth which causes it to

remain at rest, but rather its magnitude. For the air beneath remains *in situ* by reason of its vast mass, finding no means of escape through the narrow passage; and the mass of the air is thus vast, because it is imprisoned inside by the great magnitude of the Earth; which effect will be produced in the same manner, even though the Earth be spherical, provided it be of its present magnitude. Moreover, philosophers who hold this opinion about the motion of the Earth, think only of its motion as a whole, and take no account of its parts. For they ought to define at the first step whether bodies have or have not one special mode of motion by nature; and, if none by nature, then whether they have any mode of motion violent or contra-natural. I have already determined this point as well as my powers admitted, and shall therefore assume the results as settled. If there be no special motion natural to bodies, neither will there be any which is contra-natural or violent; and, if there be none either natural or violent, no body will be moved at all. I have already shown that this is a necessary consequence; and, farther, that (upon that supposition) there can be no body even at rest; for rest, like motion, is either natural or contra-natural; and, if there be any special mode of motion which is natural, neither contra-natural motion, nor contra-natural rest, can stand alone (ss. 11-13).

Let us then assume (reasoning on the hypothesis of these philosophers) that the Earth now remains in its present place contrary to nature, and that it was carried into aggregation at the centre by the revolution of the Kosmos (also contrary to nature—καὶ συνῆλθε ἐπὶ τὸ μέσον φερομένη διὰ τὴν δόξιν—s. 14). For all those who recognize a generation of the Kosmos assign this revolution as the cause which determined the aggregation of the Earth at the centre, upon the analogy of particles carried round in liquids or in air, where the larger and heavier particles are always carried to the centre of the revolution. They profess thus to know the cause which determined the Earth to *come to* the centre; but what they seek to find out is the cause which determines it to remain there, and upon that they differ: some saying, as has been stated just now, that its breadth and magnitude is the cause; others, with Empedokles, ascribing the fact to the revolution of the Heaven, the extreme velocity of which checks the fall of the Earth downward, just as water in a cup may be whirled rapidly round without falling to the ground. But suppose absence of these two causes: in which direction will the Earth be naturally carried? Not to the centre; for (upon the doctrine which we are now criticizing) its motion to the centre, and its remaining at the centre, are both

of them contra-natural; but some special mode of motion, natural to the Earth, there must necessarily be. Is this upward, or downward, or in what other direction? If there be no greater tendency downward than upward, and if the air above does not hinder the Earth from tending upward, neither will the air beneath hinder it from tending downwards: the same causes produce the same effects, operating on the same matter (ss. 14, 15).

A farther argument becomes applicable, when we are reasoning against Empedokles. When the four elements were first separated out of their confused huddle by the influence of Contention, what was the cause for the Earth to remain still and *in situ*? Empedokles cannot claim to introduce then the agency of the cosmical revolution. Moreover, it is strange that he should not have reflected that in the first instance the particles and fragments of the Earth were carried to the centre. But what is the cause now that every thing having weight is carried towards the Earth? It cannot be the revolution of the Heaven which brings these things nearer to us (s. 16).

Again, Fire is carried upward. What is the cause of this? The revolution of the Heaven cannot cause it. But, if it be the nature of fire to be carried in one certain direction, it must be equally the nature of Earth to be carried in one certain direction. Light and heavy, also, are not discriminated by the heavenly revolution. There are matters originally heavy, and matters originally light: the former are carried to the centre, the latter to the circumference, each by its own special motion. Even prior to the heavenly revolution there existed things intrinsically light and intrinsically heavy; which are discriminated by certain attributes—a certain natural mode of motion and a certain place. In infinite space, there can be no upward and downward; and it is by this (local distinction) that light and heavy are discriminated (ss. 17, 18).

While most philosophers insist upon the causes just noticed why the Earth remains stationary where it is, there are others, like Anaximander, among the ancients, who say that it remains so because of its likeness or equality (*διὰ τὴν ὁμοιότητα*—equal tendency in all directions). That which is situated in the centre (they say) and which has like relation to the extreme parts (i.e., like to *all* the extreme parts) ought not to be carried any more upward or downward or sideways; and it cannot be moved in opposite directions at once; so that it remains stationary by necessity (s. 19).

This doctrine is ingenious, but not true. For the property affirmed is noway peculiar to the Earth: the affirmation is, that every thing which is placed at the centre must of necessity remain

there; so that Fire also would remain there at rest, as well as Earth. But this necessity must be denied. For it is shown by observation that the Earth not only remains at the centre, but is carried to the centre; since each part of it is carried thither, and, whithersoever the parts are carried, the whole is carried necessarily to the same point. The peculiar property of the Earth therefore is, not (as this hypothesis declares) to have like relation to all the extreme parts—for that is common to all the elements—but to be carried towards the centre (ss. 20, 21).

Moreover, it is absurd to investigate why the Earth remains at the centre, and not to investigate equally why Fire remains at the extremity. For, if you explain this last by saying that Fire has its natural place at the extremity, the Earth must have its natural place somewhere else. If the centre be not the natural place of the Earth, and if the Earth remains there through like tendency in all directions, like the hair in equal tension or the man both hungry and thirsty between food and drink, you must equally assign the reason why Fire remains at the extremity. It is singular too that you should try to explain only the *remaining at rest* (μονῆς) of the Earth, and not also seek to explain the natural current (φορά)—why Earth is carried downward, and Fire upward, when there is no opposing force (s. 22).

Nor can it be admitted that the doctrine is true. Thus much indeed is true by accident—that every thing which has no greater obligation to be moved in this direction than in that, must necessarily remain at the centre. But this is true only so long as it remains a compact whole; for, according to the theory which we are discussing, it will not remain stationary, but will be moved: not indeed as a whole, but dispersed into parts (s. 23: ἀλλὰ μὴν οὐδὲ ἀληθές ἐστι τὸ λεγόμενον. κατὰ συμβεβηκὸς μέντοι τοῦτό γε ἀληθές, ὡς ἀναγκαῖον μένειν ἐπὶ τοῦ μέσου πάν, ᾧ μὴθὲν μᾶλλον δεῦρο ἢ δεῦρο κινεῖσθαι προσήκει. ἀλλὰ διὰ γε τοῦτον τὸν λόγον οὐ μενεῖ ἀλλὰ κινηθήσεται· οὐ μέντοι ὅλον, ἀλλὰ διεσπασμένον.—I understand κατὰ συμβεβηκός to mean, subject to the condition of its remaining a compact whole.). For the same reasoning would apply to Fire as well as to Earth: it would prove that Fire, if placed at the centre, will remain there just as much as Earth, because Fire will have like relation to each point of the extreme periphery. Yet nevertheless it will (not remain at the centre, but will) be carried away, if not impeded, as we observe that it is carried in fact, to the periphery; only not all to one and the same point of the periphery, but corresponding portions of the Fire to corresponding portions of the periphery: I mean, that the fourth part (e.g.) of the Fire will

be carried to the fourth part of the periphery; for a point is no real part of bodies (οὐθέν γὰρ στιγμή τῶν σωμάτων ἐστίν). This is the only necessary consequence flowing from the principle of likeness of relation. As, if supposed to be put all together at the centre, it would contract from a larger area into a smaller, so, when carried away from the centre to the different parts of the periphery, it would become rarer and would expand from a smaller area into a larger. In like manner the Earth also would be moved away from the centre, if you reason upon this principle of likeness of relation, and if the centre were not the place belonging to it by nature (s. 24).

CH. 14.—Having thus reported the suppositions of others respecting the figure, place, rest and motion, of the Earth, I shall now deliver my own opinion, first, whether it is in motion or at rest; for some philosophers, as I have said, regard it as one of the stars (and therefore not in the centre, but moving round the centre—the Pythagorean theory); others (as Plato), though they place it in the centre, consider it to be packed and moved round the middle of the axis of the Kosmos (οἱ δὲ ἐπὶ τοῦ μέσου θάντες, εὐλαῖσθαι καὶ κινεῖσθαι φασὶ περὶ τὸν μέσον πόλον).

That neither of these hypotheses is possible, we shall perceive if we take as our point of departure—That, if the Earth be carried round, whether in the centre or apart from the centre, such motion must necessarily be violent or contra-natural. Such motion does not belong naturally to the Earth itself; for, if such were the fact, it would, belong equally to each portion of the Earth, whereas we see that all these portions are carried in a straight line to the centre. Being thus violent or contra-natural, it cannot possibly be eternal. But the order of the Kosmos is eternal. Besides, all the bodies which are carried round in a circular revolution (all except the First or Outermost Sphere—the Aplanês) appear to observation as lagging behind and as being moved in more than one current. The like ought to happen with the Earth, if moved round, whether on the centre or apart from the centre: it ought to be moved in two currents; and, as a consequence thereof, there ought to be side-motions and back-turnings of the stars fastened in their sphere. But we see by observation that this does not happen; and that the same stars always rise and set at the same places of the Earth (s. 1).

Farthermore, the natural current both of the entire Earth and of each of its parts is towards the middle of the universe: this is the reason why it is at the centre, even though it happens to be actually there at present (διὰ τοῦτο γὰρ, κἂν εἰ τυγχάνει κειμένη νῦν ἐπὶ τοῦ

κέντρον—he means that though actually there, it remains there not through any force of inertia or other cause, but because it has a natural current towards the centre). You might start a doubt, indeed, since the centre of the Universe coincides with the centre of the Earth, to which of the two it is that the current of heavy bodies naturally tends: whether they tend thereto because it is the centre of the Universe, or because it is the centre of the Earth. We must however necessarily suppose the former; since Fire and light bodies, whose current is the contrary of the current of heavy bodies, are carried to the extreme periphery of the Universe, or of that place which comprehends and surrounds the centre of the Universe (ss. 2, 3). But it happens (συμβέβηκε: it is an accompanying fact) that the same point is centre of the Universe and centre of the Earth; accordingly heavy bodies are carried by accident (κατὰ συμβεβηκός—by virtue of this accompanying fact) to the centre of the Earth; and the proof that they are carried to this same point is, that their lines of direction are not parallel but according to similar angles (s. 4). That the Earth therefore is at the centre, and that it is at rest, we may see by the foregoing reasons, as well as by the fact, that stones thrown upwards to ever so great a height, are carried back in the same line of direction to the same point (s. 5).

We may see farther the cause why the Earth remains at rest. For, if its natural current be from all directions towards the centre, as observation shows, and that of Fire from the centre to the periphery,—no portion of it can possibly be carried away from the centre, except by violence. For to one body belongs one current of motion, and to a simple body a simple current—not the two opposite currents; and the current *from* the centre is opposite to the current *to* the centre. If, therefore, it be impossible for any portion of the Earth to be carried in a direction away from the centre, it is yet more impossible for the whole Earth to be so; for the natural current of each part is the same as that of the whole. Accordingly, since the Earth cannot be moved except by a superior force or violence, it must necessarily remain stationary at the centre (s. 6). The same conclusion is confirmed by what we learn from geometers respecting astronomy; for all the phenomena of the Heavens—the changes in figure, order, and arrangement of the stars—take place as if the Earth were in the centre (s. 7).

The figure of the Earth is necessarily spherical. For each of its parts has gravity, until it reaches the centre; and the lesser part, pushed forward by the greater, cannot escape laterally, but must become more and more squeezed together, one part giving place to

the other, until the centre itself is reached. We must conceive what is here affirmed as occurring in a manner like what some of the ancient physical philosophers tell us, except that *they* ascribe the downward current to an extraneous force; whereas we think it better to state the truth, and to say that it occurs because *by nature* all heavy bodies are carried towards the centre. Since, therefore, the preliminary Chaos or hotchpotch existed in power (or with its inherent powers existing though not exercised), the elements (those which had gravity), were carried from all sides equally towards the centre (*ἐν δυνάμει οὖν ὄντος τοῦ μίγματος, τὰ διακρινόμενα ἐφέρετο ὁμοίως πάντοθεν πρὸς τὸ μέσον*—this is an allusion to the doctrine of Anaxagoras); indeed, whether brought together at the centre equally from all the periphery or in any other manner, the result will be the same. If we suppose particles to be brought together at the centre equally from all sides, it is plain that the mass so formed will be regular and spherical; and, even if not equally from all sides, this will make no difference in the reasoning; for, since all portions of the mass have weight or tend to the centre, the larger portions will necessarily push the lesser before them as far as the centre (ss. 8, 9).

A difficulty here presents itself, which may be solved upon the same principles. The Earth being spherical, and at the centre, suppose that a vast additional weight were applied to either of its hemispheres. In that case, the centre of the Universe, and the centre of the Earth, would cease to coincide: either, therefore, the Earth will not remain at the centre; or, if it would still remain at rest, while not occupying the centre, it is in its nature to be moved even now (s. 10: ὥστε ἡ οὐ μενεῖ ἐπὶ τοῦ μέσου, ἡ εἴπερ ἡρεμήσει γε καὶ μὴ τὸ μέσον ἔχουσα ἢ, πέφυκε κινεῖσθαι καὶ νῦν—i.e., if the Earth *can* be at rest when not at the centre, we must infer that the centre is not its natural place, and therefore that its nature will be to be moved from the centre towards that natural place wherever situated).

Such is a statement of the difficulty; but we shall see that it may be cleared up with a little attention. We must distinguish what we mean when we affirm that every particle having weight is carried towards the centre. We clearly do not mean that it will be so carried until the particles farthest from the centre shall touch the centre. We mean that the greater mass must press with preponderating force (*δεῖ κρατεῖν τὸ πλεῖον ἕως ἂν λάβῃ τῷ αὐτοῦ μέσῳ τὸ μέσον*) until its centre grasps the centre of the universe; up to this point its gravity will last; and this is equally true about any clod of earth as about the whole earth: large or small size makes no difference.

Whether the whole Earth were carried in a mass from any given position, or whether it were carried in separate particles, in either case it would be carried onward until it embraced the centre equally on all sides; the smaller parts being equalized to the greater in gravitating tendency because they are pushed forward by the greater (*ἀνισαζομένων τῶν ἐλαττόνων ὑπὸ τῶν μειζόνων τῇ προύσει*—s. 11). If, therefore, the Earth was ever generated, it must have been generated in this manner, and must thus acquire a spherical figure; and, even if it be ungenerable and stationary from everlasting, we must conceive its figure to be that which it would have acquired, if it had been generable and generated from the first (*ἐν ἀγέννητος δὲ μένουσα, τὸν αὐτὸν τρόπον ἔχειν, ὅνπερ καὶ εἰ γενομένη τὸ πρῶτον ἐγένετο*). That it must be spherical, we see not only from this reasoning, but also because all heavy bodies are carried towards it, not in parallel lines but, in equal angles. This is what naturally happens with what is either actually spherical, or by nature spherical. Now we ought to call every thing such as it by nature wishes to become and to be: we ought not to call it such as it is by force and contrary to nature (s. 12).

The same conclusion is established by the sensible facts within our observation. If the Earth had been of any other than spherical figure, the eclipses of the Moon would not have projected on the Sun the outlines which we now see. The moon in her configurations throughout the month takes on every variety of outline—rectilinear, double convex, and hollow. But in her eclipses the distinguishing line is always convex. Now this must necessarily be occasioned by the circumference of the Earth being spherical, since the eclipses of the Moon arise from the interposition of the Earth (s. 13).

Farthermore, we see from the visible phenomena of the stars not only that the Earth is spherical, but also that its magnitude is not great. For, when we change our position a little as observers, either to the north or to the south, we find the celestial horizon to be manifestly different. The stars at the zenith are greatly changed, and the same stars do not appear: some stars are visible in Egypt and Cyprus, but become invisible when we proceed farther north; and those which are constantly visible in the northern regions, are found to be not constantly visible, but to set, when the observer is in Egypt or Cyprus. The bulk of the Earth must therefore be small, when a small change of position is made so soon manifest to us (s. 14). Hence those who hold that the regions near the pillars of Hērakles join on with India and that the ocean eastward and westward is one and the same, must not be supposed to talk extravagantly (*μὴ λίαν ὑπολαμβάνειν ἄπιστα δοκεῖν*): they infer this from the

presence of elephants alike at both extremities. Geometers who try to calculate the magnitude of the Earth, affirm that its circumference is 400,000 stadia.

It follows necessarily from all these reasonings, that the body of the Earth is not only of spherical form, but also not large compared with the magnitude of the other Stars (ss. 15, 16).

[The remaining two books of the treatise known by the title 'De Cælo,' while connected with the foregoing, are still more closely connected with the two Books composing the treatise entitled 'De Generatione et Corruptione.' The discussion carried on throughout the two treatises is in truth one; but, if anywhere broken, it is at the end of Book II. De Cælo, as above. From this point Aristotle proceeds to consider (in four Books) the particular phenomena presented by natural bodies—phenomena of Generation and Destruction (in the widest sense of these words)—dependent on the opposition of the upward and downward motions; bodies, thus light or heavy, being thence seen to be ultimately reducible to four elements variously combined. Treating of the Kosmos in its larger aspects, the first two Books of De Cælo, here abstracted, are obviously those that alone correspond strictly to the name of the treatise.]

V.

EPIKURUS.

OUR information from Epikurean writers respecting the doctrines of their sect is much less copious than what we possess from Stoic writers in regard to Stoic opinions. We have no Epikurean writer on philosophy except Lucretius; whereas respecting the Stoical creed under the Roman Empire, the important writings of Seneca, Epictetus, and Marcus Antoninus, afford most valuable evidence.

The standard of Virtue and Vice is referred by Epikurus to Pleasure and Pain. Pain is the only evil, Pleasure is the only good. Virtue is no end in itself, to be sought; vice is no end in itself, to be avoided. The motive for cultivating virtue and banishing vice arises from the consequences of each, as the means of multiplying pleasures and averting or lessening pains. But to the attainment of this purpose, the complete supremacy of Reason is indispensable; in order that we may take a right comparative measure of the varieties of pleasure and pain, and pursue the course that promises the least amount of suffering.

This theory (taken in its most general sense, and apart from differences in the estimation of particular pleasures and pains), had been proclaimed long before the time of Epikurus. It is one of the various theories of Plato; for in his dialogue called *Protagoras* (though in other dialogues he reasons differently) we find it explicitly set forth and elaborately vindicated by his principal spokesman, Sokrates, against the Sophist Protagoras. It was also held by Aristippus (companion of Sokrates along with Plato) and by his followers after him, called the Kyrenaics. Lastly, it was maintained by Eudoxus, one of the most estimable philosophers contemporary with Aristotle. Epikurus was thus in no way the originator of the theory; but he had his own way of conceiving it, his own body of doctrine physical, cosmological, and theological, with which it was implicated, and his own comparative valuation of pleasures and pains.

Bodily feeling, in the Epikurean psychology, is prior in order of time to the mental element; the former is primordial, while the latter is derived from it by repeated processes of memory and association. But, though such is the order of sequence

and generation, yet when we compare the two as constituents of happiness to the formed man, the mental element much outweighs the bodily, both as pain and as pleasure. Bodily pain or pleasure exists only in the present; when not felt, it is nothing. But mental feelings involve memory and hope, embrace the past as well as the future, endure for a long time, and may be recalled or put out of sight, to a great degree, at our discretion.

This last point is one of the most remarkable features of the Epikurean mental discipline. Epikurus deprecated the general habit of mankind in always hankering after some new satisfaction to come; always discontented with the present, and oblivious of past comforts as if they had never been. These past comforts ought to be treasured up by memory and reflection, so that they might become as it were matter for rumination, and might serve, in trying moments, even to counterbalance extreme physical suffering. The health of Epikurus himself was very bad during the closing years of his life. There remains a fragment of his last letter, to an intimate friend and companion, Idomeneus:—"I write this to you on the last day of my life, which, in spite of the severest internal bodily pains, is still a happy day, because I set against them in the balance all the mental pleasure felt in the recollection of my past conversations with you. Take care of the children left by Metrodorus, in a manner worthy of your demeanour from boyhood towards me and towards philosophy." Bodily pain might thus be alleviated, when it occurred; it might be greatly lessened in occurrence, by prudent and moderate habits; lastly, even at the worst, if violent, it never lasted long; if not violent, it might be patiently borne, and was at any rate terminated, or terminable at pleasure, by death.

In the view of Epikurus, the chief miseries of life arose, not from bodily pains, but partly from delusions of hope and exaggerated aspirations for wealth, honours, power, &c., in all which the objects appeared most seductive from a distance, inciting man to lawless violence and treachery, while in the reality they were always disappointments and generally something worse; partly, and still more, from the delusions of fear. Of this last sort, were the two greatest torments of human existence—fear of Death and of eternal suffering after death, as announced by prophets and poets, and fear of the Gods. Epikurus, who did not believe in the continued existence of the soul separate from the body, declared that there could never be any rational ground for fearing death, since it was simply a permanent extinction of consciousness. Death was nothing to us

(he said): when death comes, *we* are no more, either to suffer or to enjoy. Yet it was the groundless fear of this nothing that poisoned all the tranquillity of life, and held men imprisoned even when existence was a torment. Whoever had surmounted that fear was armed at once against cruel tyranny and against all the gravest misfortunes. Next, the fear of the gods was not less delusive, and hardly less tormenting, than the fear of death. It was a capital error (Epikurus declared) to suppose that the gods employed themselves as agents in working or superintending the march of the Kosmos; or in conferring favour on some men, and administering chastisement to others. The vulgar religious tales, which represented them in this character, were untrue and insulting as regards the gods themselves, and pregnant with perversion and misery as regards the hopes and fears of mankind. Epikurus believed sincerely in the gods; revered them as beings at once perfectly happy, immortal, and unchangeable; and took delight in the public religious festivals and ceremonies. But it was inconsistent with these attributes, and repulsive to his feelings of reverence, to conceive them as agents. The idea of agency is derived from human experience: we, as agents, act with a view to supply some want, to fulfil some obligation, to acquire some pleasure, to accomplish some object desired but not yet attained—in short, to fill up one or other of the many gaps in our imperfect happiness: the gods already *have* all that agents strive to get, and more than agents ever do get; their condition is one not of agency, but of tranquil, self-sustaining, fruition. Accordingly, Epikurus thought (as Aristotle* had thought before him) that the perfect, eternal, and imperturbable well-being and felicity of the gods excluded the supposition of their being agents. He looked upon them as types of that unmolested safety and unalloyed satisfaction which was what he understood by pleasure or happiness, as objects of reverential envy, whose sympathy he was likely to obtain by assimilating his own temper and condition to theirs as far as human circumstances allowed.

These theological views were placed by Epikurus in the foreground of his ethical philosophy, as the only means of dispelling

* Aristot. De Cælo, II. xii. p. 292, a. 22-b. 7: *ἔοικε γὰρ τῷ μὲν ἄριστα ἔχοντι ὑπάρχειν τὸ εὖ ἔνευ πράξεως, τῷ δ' ἐγγύτατα διὰ ὀλίγης καὶ μιᾶς, τοῖς δὲ πορρωτάτω διὰ πλείονων, — τῷ δ' ὡς ἄριστα ἔχοντι οὐθὲν δεῖ πράξεως: ἔστι γὰρ αὐτὸ τὸ οὐ ἔνεκα, ἢ δὲ πρῶξις ἀέλ' ἐστὶν ἐν δυσί,*

δταν καὶ οὐ ἔνεκα ἢ καὶ τὸ τούτου ἔνεκα. &c. Ibid. iii. p. 286, a. 9: *θεοῦ δ' ἐνέργεια ἀθανασία: τοῦτο δ' ἐστὶ ζωὴ ἀίδιος, &c.*

In the *Ethica*, Aristotle assigns theorizing contemplation to the gods, as the only process worthy of their exalted dignity and supreme felicity.

those fears of the gods that the current fables instilled into every one, and that did so much to destroy human comfort and security. He proclaimed that beings in immortal felicity neither suffered vexation in themselves nor caused vexation to others; neither showed anger nor favour to particular persons. The doctrine that they were the working managers in the affairs of the Kosmos, celestial and terrestrial, human and extra-human, he not only repudiated as incompatible with their attributes, but declared to be impious, considering the disorder, sufferings, and violence, everywhere visible. He disallowed all prophecy, divination, and oracular inspiration, by which the public around him believed that the gods were perpetually communicating special revelations to individuals, and for which Sokrates had felt so peculiarly thankful.

It is remarkable that Stoics and Epikureans, in spite of their marked opposition in dogma or theory, agreed so far in practical results, that both declared these two modes of uneasiness (fear of the gods and fear of death) to be the great torments of human existence, and both strove to remove or counterbalance them.

So far the teaching of Epikurus appears confined to the separate happiness of each individual, as dependent upon his own prudence, sobriety, and correct views of Nature. But this is not the whole of the Epikurean Ethics. The system also considered each man as in companionship with others: the precepts were shaped accordingly, first as to Justice, next as to Friendship. In both these, the foundation whereon Epikurus built was Reciprocity—not pure sacrifice to others, but partnership with others, beneficial to all. He kept the ideas of self and of others inseparably knit together in one complex association: he did not expel or degrade either, in order to give exclusive ascendancy to the other. The dictate of Natural Justice was, that no man should hurt another: each was bound to abstain from doing harm to others; each, on this condition, was entitled to count on security and relief from the fear that others would do harm to him. Such double aspect, or reciprocity, was essential to social companionship: those that could not, or would not, accept this covenant, were unfit for society. If a man does not behave justly towards others, he cannot expect that they will behave justly towards him; to live a life of injustice, and expect that others will not find it out, is idle. The unjust man cannot enjoy a moment of security. Epikurus laid it down explicitly, that just and righteous dealing was the indispensable condition to every one's comfort, and was the best means of attaining it.

The reciprocity of Justice was valid towards all the world; the reciprocity of Friendship went much farther: it involved indefinite and active beneficence, but could reach only to a select few. Epikurus insisted emphatically on the value of friendship, as a means of happiness to both the persons so united. He declared that a good friend was another self, and that friends ought to be prepared, in case of need, to die for each other. Yet he declined to recommend an established community of goods among the members of his fraternity, as prevailed in the Pythagorean brotherhood; for such an institution (he said) implied mistrust. He recommended efforts to please and to serve, and a forwardness to give, for the purpose of gaining and benefiting a friend, and he even declared that there was more pleasure in conferring favours than in receiving them; but he was no less strenuous in inculcating an intelligent gratitude on the receiver. No one except a wise man (he said) knew how to return a favour properly.*

These exhortations to active friendship were not unfruitful. We know, even by the admission of witnesses adverse to the Epikurean doctrines, that the harmony among the members of the sect, with common veneration for the founder, was more marked and more enduring than that exhibited by any of the other philosophical sects. Epikurus himself was a man of amiable personal qualities: his testament, still remaining, shows an affectionate regard both for his surviving friends, and for the permanent attachment of each to the others as well as of all to the school. Diogenes Laertius tells us—nearly 200 years after Christ, and 450 years after the death of Epikurus—that the Epikurean sect still continued its numbers and dignity, having outlasted its contemporaries and rivals. The harmony among the Epikureans may be explained, not merely from the temper of the master, but partly from the doctrines and plan of life that he recommended. Ambition and love of power were discouraged; rivalry among the members for success, either political or rhetorical, was at any rate a rare exception; all were taught to confine themselves to that privacy of life and love of philosophical communion which alike required and nourished the mutual sympathies of the brotherhood. In regard to politics, Epikurus advised quiet submission to established authority, without active meddling beyond what necessity required.

Virtue and happiness, in the theory of Epikurus, were inseparable. A man could not be happy until he had surmounted the fear of death and the fear of gods instilled by the current fables,

* Seneca, Epist. p. 81.

which disturbed all tranquillity of mind; until he had banished those factitious desires that pushed him into contention for wealth, power, or celebrity; nor unless he behaved with justice to all, and with active devoted friendship towards a few. Such a mental condition, which he thought it was in every man's power to acquire by appropriate teaching and companionship, constituted virtue; and was the sure as well as the only precursor of genuine happiness. A mind thus undisturbed and purified was sufficient to itself. The mere satisfaction of the wants of life, and the conversation of friends, became then felt pleasures: if more could be had without preponderant mischief, so much the better; but Nature, disburthened of her corruptions and prejudices, required no more to be happy. This at least was as much as the conditions of humanity admitted: a tranquil, undisturbed, innocuous, non-competitive fruition, which approached most nearly to the perfect happiness of the Gods.

When we read the explanations given by Epikurus and Lucretius of what the Epikurean theory really was, and compare them with the numerous attacks upon it made by opponents, we cannot but remark that the title and formula of the theory was ill-chosen, and really a misnomer. What Epikurus meant by Pleasure was not what most people meant by it, but something very different—a tranquil and comfortable state of mind and body; much the same as what Demokritus had expressed before him by the phrase *εὐθυμία*. This last phrase would have expressed what Epikurus aimed at, neither more nor less. It would at least have preserved his theory from much misplaced sarcasm and aggressive rhetoric.

The Physics of Epikurus was borrowed in the main from the atomic theory of Demokritus, but modified by him in a manner subservient and contributory to his ethical scheme. To that scheme it was essential that those celestial, atmospheric, or terrestrial phenomena which the public around him ascribed to agency and purposes of the gods, should be understood as being produced by physical causes. An eclipse, an earthquake, a storm, a shipwreck, unusual rain or drought, a good or a bad harvest—and not merely these, but many other occurrences far smaller and more unimportant, as we may see by the eighteenth chapter of the 'Characters' of Theophrastus—were then regarded as visitations of the gods, requiring to be interpreted by recognized prophets, and to be appeased by ceremonial expiations. When once a man became convinced that all these phenomena proceeded from physical agencies, a host of terrors and anxieties would disappear from the

mind; and this Epikurus asserted to be the beneficent effect and real recommendation of physical philosophy. He took little or no thought for scientific curiosity as a motive *per se*, which both Demokritus and Aristotle put so much in the foreground.

He composed a treatise called 'Kanonikon' (now lost), which seems to have been a sort of Logic of Physics—a summary of the principles of evidence. In his system, Psychology was to a great extent a branch—though a peculiar and distinct branch—of Physics, since the soul was regarded as a subtle but energetic material compound (air, vapour, heat, and another nameless ingredient), with its best parts concentrated in the chest, yet pervading and sustaining the whole body—still, however, depending for its support on the body, and incapable of separate or disembodied continuance.

Epikurus recognized, as the primordial basis of the universe, Atoms, Vacuum, and Motion. The atoms were material solid *minima*, each too small to be apprehended separately by sense; they had figure, magnitude, and gravity, but no other qualities. They were infinite in number, and ever moving in an infinite vacuum. Their motions brought them into various coalitions and compounds, resulting in the perceptible bodies of nature; each of which in its combined state acquired new, specific, different qualities. In regard to the primordial movements of the atoms, out of which these endowed compounds grew, Epikurus differed from Demokritus who supposed the atoms originally to move with an indefinite variety of directions and velocities, rotatory as well as rectilinear; whereas Epikurus maintained that the only original movement common to all atoms was one and the same—in the direction of gravity straight down, and all with equal velocity in the infinite void. But it occurred to him that, upon this hypothesis only, there could never occur any collisions or combinations of the atoms—nothing but continued and unchangeable parallel lines. Accordingly he modified it by saying that the line of descent was not strictly rectilinear, but that each atom deflected a little from the straight line, each in its own direction and degree; so that it became possible to assume collisions, resiliences, adhesions, combinations, among them, as it had been possible under the variety of original movements ascribed to them by Demokritus. The opponents of Epikurus derided this auxiliary hypothesis, affirming that he invented the individual deflection of each atom without assigning any cause, and only because he was perplexed by the mystery of man's freewill. But Epikurus was not more open to attack on this ground than other physical philosophers. Most of them (except perhaps the most

consistent of the Stoic fatalists) believed that some among the phenomena of the universe occurred in regular and predictable sequence, while others were essentially irregular and unpredictable: each philosopher devised his hypothesis, and recognized some fundamental principle, to explain the latter class of phenomena as well as the former; thus, Plato admitted an invincible erratic necessity, Aristotle introduced Chance and Spontaneity, Demokritus multiplied indefinitely the varieties of atomic movements. The hypothetical deflection alleged by Epikurus was his way, not more unwarranted than the others, of providing a fundamental principle for the unpredictable phenomena of the universe. Among these are the volitional manifestations of men and animals; but there are many others besides, and there is no ground for believing that what is called the mystery of Free-Will (*i. e.*, the question whether volition is governed by motives, acting upon a given state of the mind and body) was at all peculiarly present to his mind. Whatever theory may be adopted on this point, it is certain that the movements of an individual man or animal are not exclusively determined by the general law of gravitation, or by another cause extrinsic to himself; but to a great degree by his own separate volition, which is often imperfectly knowable beforehand and therefore not predictable. For these and many other phenomena, Epikurus provided a fundamental principle in his supplementary hypothesis of atomic deflection; and indeed not for these only, but also for the questions of opponents, how there could ever be any coalition between the atoms, if all followed only one single law of movement—rectilineal descent with equal velocity. Epikurus rejected the inexorable and all-comprehensive fatalism contained in the theories of some Stoics, though seemingly not construed in its full application even by them. He admitted a limited range of empire to Chance, or phenomena essentially irregular. But he maintained that the will, far from being among the phenomena essentially irregular, is under the influence of motives; for no man can insist more strenuously than he does (see the letter to Menœkeus) on the complete power of philosophy—if the student could be made to feel its necessity and desire the attainment of it, so as to meditate and engrain within himself sound views about the gods, death, and human life generally—to mould our volitions and character in a manner conformable to the exigencies of virtue and happiness.

All true belief, according to Epikurus, rested ultimately upon the impressions of sense, upon our internal feelings, and upon our correct apprehension of the meaning of terms. He did not suppose

the significance of language to come by convention, but to be an inspiration of Nature, different among different people. The facts of sense were in themselves beyond all question. But truth, though founded upon these evidences, included various inferences, more than sense could directly testify. Even the two capital points of the Epikurean physical philosophy—Atoms and Void—were inferences from sense, and not capable of direct attestation. It was in these inferences, and in the superstructure built upon sense, that error was so frequently imposed upon us. We ought to test all affirmations or dogmas by the evidence of sensible phenomena; looking therein, if possible, for some positive grounds in support of them, but at any rate assuring ourselves that there were no grounds in contradiction of them, or, if there were such, rejecting the dogmas at once. Out of the particular impressions of sense, when often repeated, remembered, and compared, there grew certain general notions or anticipations (*προλήψεις*), which were applied to interpret or illustrate any new case when it arose. These general notions were not inborn or intuitive, but gradually formed (as Aristotle and the Stoics also conceived them) out of frequent remembrances and association.

Besides those conclusions which could be fully proved by the evidentiary data just enumerated, Epikurus recognized admissible hypotheses, which awaited farther evidence confirmative or refutative (*τὸ πρόσμενον*), and also other matters occult or as yet unexplained (*τὰ ἄδηλα*). Along with the intermediate or half-explained class, he reckoned those in which plurality of causes was to be invoked. A given effect might result from any one out of two, three, or more different causes, and there was often no counter-evidence of sense to exclude either of them in any particular case. This plural explanation (*τὸ πλεοναχῶς*) was not so complete or satisfactory as the singular (*τὸ μοναχῶς*); but it was often the best that we could obtain, and was quite sufficient, by showing a possible physical agency, to rescue the mind from those terrors of ignorance, which drove men to imagine visitations of the gods.

Epikurus agreed with Demokritus in believing that external objects produced their impressions on our senses by projecting thin images, outlines of their own shapes. He thought that the air was peopled with such images, which passed through it and still more through the infinite vacuum beyond it with prodigious velocity. Many of them became commingled, dissipated, recombined, during the transit, so that, when they reached us, the impressions produced were not conformable to any real object; hence the phenomena of dreams, madness, and the various delusions of waking men.

In setting forth the criterion of truth, Epikurus insisted chiefly upon the fundamental groundwork—particular facts of sense, as the data for proving or disproving general affirmations; and he had the merit of calling attention to refutative data as well as to probative. But, respecting the process of passing from these particulars to true generalities and avoiding the untrue, we can make out no clear idea from his writings that remain: his great work on Physical Philosophy is lost. It is certain that he disregarded the logical part of the process—the systematic study of propositions, and their relations of consistency with one another—which had made so prodigious a stride during his early years under Aristotle and Theophrastus. We can, indeed, detect in his remaining sentences one or two of those terms which Aristotle had stamped as technical in Logic; but he discouraged as useless all the verbal teaching and discussion of his day—all grammar, rhetoric, and dialectic, beyond the lowest minimum. He disapproved of the poets as promulgators of mischievous fables and prejudices, the rhetoricians as furnishing weapons for the misleading career of political ambition, the dialecticians as wasting their time in useless puzzles. None of them were serviceable in promoting either the tranquillity of the mind, or the happiness of life, or the acquisition of truth. He himself composed a great number of treatises and epistles, on subjects of ethics and philosophy; but he is said to have written in haste, without taking time or trouble to correct his compositions. By the Alexandrine critic, Aristophanes of Byzantium, his style was censured as unpolished; yet it is declared to have been simple, unaffected, and easily understood. This last predicate is hardly applicable to the three epistles which alone remain from his pen; but those epistles are intended as brief abstracts of doctrine, on topics which he had already treated at length in formal works; and it is not easy to combine clearness with brevity.

VI.

THE STOICS.—A FRAGMENT.

The Stoics were one of the four sects of philosophy recognized and conspicuous at Athens during the three centuries preceding the Christian era and during the century or more following. Among these four sects, the most marked antithesis of ethical dogma was between the Stoics and the Epikureans.

The Stoics agreed with the Peripatetics (anterior to Epikurus, not specially against *him*) that the first principle of nature is (not pleasure or relief from pain, but) Self-preservation or Self-love; in other words, the natural appetite or tendency of all creatures is, to preserve their existing condition with its inherent capacities, and to keep clear of destruction or disablement. This appetite (they said) manifests itself in little children before any pleasure or pain is felt, and is moreover a fundamental postulate, pre-supposed in all desires of particular pleasures, as well as in all aversions to particular pains. We begin by loving our own vitality; and we come, by association, to love what promotes or strengthens our vitality; we hate destruction or disablement, and come (by secondary association) to hate whatever produces that effect.

This doctrine associated, and brought under one view, what was common to man not merely with the animal, but also with the vegetable world; a plant was declared to have an impulse or tendency to maintain itself, without feeling pain or pleasure. Aristotle (in the tenth Book of the *Ethica*) says that he will not determine whether we love life for the sake of pleasure, or pleasure for the sake of life; for he affirms the two to be essentially yoked together and inseparable: pleasure is the consummation of our vital manifestations. The Peripatetics, after him, put pleasure down to a lower level, as derivative and accidental. The Stoics went farther in the same direction—possibly from antithesis against the growing school of Epikurus.

The primary *officium* (in a larger sense than our word duty) of man is (they said) to keep himself in the State of Nature; the second or derivative *officium* is to keep to such things as are according to nature, and to avert those that are contrary to nature; our gradually increasing experience enables us to discriminate the two.

The youth learns, as he grows up, to value bodily accomplishments, mental cognitions and judgments, good conduct towards those around him,—as powerful aids towards keeping up the state of nature. When his experience is so far enlarged as to make him aware of the order and harmony of nature and human society, and to impress upon him the comprehension of this great *idéal*, his emotions as well as his reason become absorbed by it. He recognizes this as the only true Bonum or Honestum, to which all other desirable things are referable; as the only thing desirable for itself and in its own nature. He drops or dismisses all those *prima nature* that he had begun by desiring. He no longer considers any of them as worthy of being desired in itself, or for its own sake.

While, therefore, (according to Peripatetics as well as Stoics) the love of self and of preserving one's own vitality and activity is the primary element, intuitive and connate, to which all rational preference (*officium*) was at first referred, they thought it not the less true that in process of time, by experience, association, and reflection, there grows up in the mind a grand acquired sentiment or notion, a new and later light, which extinguishes and puts out of sight the early beginning. It was important to distinguish the feeble and obscure elements from the powerful and brilliant after-growth; which indeed was fully realized only in chosen minds, and in them hardly before old age. This idea, when once formed in the mind, was The Good—the only thing worthy of desire for its own sake. The Stoics called it the only good, being sufficient in itself for happiness; other things being not good, nor necessary to happiness, but simply preferable or advantageous when they could be had: the Peripatetics recognized it as the first and greatest good, but said also that it was not sufficient in itself; there were two other inferior varieties of good, of which something must be had as complementary (what the Stoics called *præposita* or *sumenda*).^{*} Thus the Stoics said about the origin of the Idea of Bonum or Honestum, much the same as what Aristotle says about ethical Virtue. It is not implanted in us by nature; but we have at

* Aristotle and the Peripatetics held that there were *tria genera bonorum*: (1) Those of the mind (*mens sana*); (2) Those of the body; and (3) External advantages. The Stoics altered this theory by saying that only the first of the three was *bonum*; the others were merely *præposita* or *sumenda*. The opponents of the Stoics contended that this was an alteration in words rather than in substance.

The earlier Stoics laid it down that there were no graduating marks below the level of wisdom: all shortcomings were on a par. Good was a point, Evil was a point; there were gradations in the *præposita* or *sumenda* (none of which were good), and in the *rejecta* or *rejienda* (none of which were evil), but there was no more or less good.

birth certain initial tendencies and capacities, which, if aided by association and training, enable us (and that not in all cases) to acquire it.

A distinction was made by Epictetus and other Stoics between things in our power and things not in our power. In our power are our opinions and notions about objects, and all our affections, desires, and aversions; not in our power are our bodies, wealth, honour, rank, authority, &c., and their opposites; though, in regard to these last, it is in our power to *think* of them as unimportant. With this distinction we may connect the arguments between the Stoics and their opponents as to what is now called the Freedom of the Will. But we must first begin by distinguishing the two questions. By things in our power, the Stoics meant things that we could do or acquire if we willed: by things not in our power, they meant things that we could not do or acquire if we willed. In both cases, the volition was assumed as a fact: the question what determined it, or whether it was non-determined, i. e., self-determining, was not raised in the antithesis. But it was raised in other discussions between the Stoic theorist Chrysippus, and various opponents. These opponents denied that volition was determined by motives, and cited the cases of equal conflicting motives (what is known as the Ass of Buridan) as proving that the soul includes in itself, and exerts, a special supervenient power of deciding action in one way or the other—a power not determined by any causal antecedent, but self-originating, and belonging to the class of agency that Aristotle recognizes under the denomination of automatic, spontaneous (or essentially irregular and unpredictable). Chrysippus replied by denying not only the reality of this supervenient force said to be inherent in the soul, but also the reality of all that Aristotle called automatic or spontaneous agency generally. Chrysippus said that every movement was determined by antecedent motives; that in cases of equal conflict the exact equality did not long continue, because some new but slight motive slipped in unperceived and turned the scale on one side or the other.* Here, we see, the question now known as the Freedom of the Will is discussed, and Chrysippus declares against freedom, affirming that volition is always determined by motives.

But we also see that, while declaring this opinion, Chrysippus does not employ the terms Necessity or Freedom of the Will; neither did his opponents, so far as we can see: they had a different and less misleading phrase. By freedom, Chrysippus and the

* See Plutarch, *De Stoicorum Repugnantibus*, xxiii. p. 1045.

Stoics meant the freedom of doing what a man willed, if he willed it. A man is free as to the thing that is in his power, when he wills it: he is not free as to what is not in his power, under the same supposition. The Stoics laid great stress on this distinction. They pointed out how much it is really in a man's power to transform or discipline his own mind—in the way of controlling or suppressing some emotions, generating or encouraging others, forming new intellectual associations, &c.; how much a man could do in these ways, if he willed it, and if he went through the lessons, habits of conduct, and meditations, suitable to produce such an effect. The Stoics strove to create in a man's mind the volitions appropriate for such mental discipline, by depicting the beneficial consequences resulting from it, and the misfortune and shame inevitable, if the mind were not so disciplined. Their purpose was to strengthen the governing reason of his mind, and to enthrone it as a fixed habit and character, which would control by counter suggestions the impulse arising at each special moment—particularly all disturbing terrors or allurements. This, in their view, is a free mind; not one wherein volition is independent of all motive, but one wherein the susceptibility to different motives is tempered by an ascendant reason, so as to give predominance to the better motive against the worse. One of the strongest motives that they endeavoured to enforce, was the prudence and dignity of bringing our volitions into harmony with the schemes of Providence; which (they said) were always arranged with a view to the happiness of the Kosmos on the whole. The bad man, whose volitions conflict with these schemes, is always baulked of his expectations, and brought at last against his will to see things carried by an overruling force, with aggravated pain and humiliation to himself: while the good man, who resigns himself to them from the first, always escapes with less pain, and often without any at all. As a portion of their view concerning Providence it may here be mentioned that the earlier Stoics, Zeno and Chrysippus, entertained high reverence for the divination, prophecy, and omens that were generally current in the ancient world. They considered that these were the methods whereby the gods were graciously pleased to make known beforehand revelations of their foreordained purposes. Herein lay one among the marked points of contrast between Stoics and Epikureans.

We have thus seen that in regard to the doctrine called in modern times the Freedom of the Will (*i. e.*, that volitions are self-originating and unpredictable), the Stoic theorists not only denied it, but framed all their Ethics upon the assumption of the contrary.

This same assumption of the contrary, indeed, was made also by Sokrates, Plato, Aristotle, and Epikurus; in short, by all the ethical teachers of antiquity. All of them believed that volitions depended on causes; that, under the ordinary conditions of men's minds, the causes that volitions generally depended upon are often misleading and sometimes ruinous; but that, by proper stimulation from without and meditation within, the rational causes of volition might be made to overrule the impulsive. Plato, Aristotle, Epikurus, not less than the Stoics, wished to create new fixed habits and a new type of character. They differed, indeed, on the question what the proper type of character was; but each of them aimed at the same general end—a new type of character, regulating the grades of susceptibility to different motives. And the purpose of all and each of these moralists precludes the theory of free-will, *i. e.*, the theory that our volitions are self-originating and unpredictable.

While the Epikureans declined, as much as possible, interference in public affairs, the Stoic philosophers urged men to the duties of active citizenship.* Chrysippus even said that the life of philosophical contemplation (such as Aristotle preferred and accounted godlike) was to be placed on the same level with the life of pleasure; though Plutarch observes that neither Chrysippus nor Zeno ever meddled personally with any public duty: both of them passed their lives in lecturing and writing. The truth is that both of them were foreigners residing at Athens, and at a time when Athens was dependent on foreign princes. Accordingly, neither Zeno nor Chrysippus had any sphere of political action open to them: they were, in this respect, like Epictetus afterwards, but in a position quite different from Seneca, the preceptor of Nero, who might hope to influence the great imperial power of Rome, and from Marcus Antoninus, who held that imperial power in his own hands.

Marcus Antoninus—not only a powerful emperor, but also the most gentle and amiable man of his day—talks of active beneficence both as a duty and a satisfaction. But in the creed of the Stoics generally, active beneficence did not occupy a prominent place. They adopted the four Cardinal Virtues—Wisdom, or the Knowledge of Good and Evil, Justice, Fortitude, Temperance—as part of their plan of the virtuous life, the life according to Nature. Justice, as the social virtue, was placed above all the rest. But the Stoics were not strenuous in requiring more than Justice, for the

* Tacitus says of the Stoics (Ann. xiv. 57): "*Stoicorum secta, quæ turbidos et negotiorum appetentes facit.*"

benefit of others beside the agent. They even reckoned compassion for the sufferings of others as a weakness, analogous to envy for the good fortune of others.

The Stoic recognized the gods (or Universal Nature, equivalent expressions in his creed) as managing the affairs of the world, with a view to producing as much happiness as was attainable on the whole. Towards this end the gods did not want any positive assistance from him; but it was his duty and his strongest interest, to resign himself to their plans, and to abstain from all conduct tending to frustrate them. Such refractory tendencies were perpetually suggested to him by the unreasonable appetites, emotions, fears, antipathies, &c., of daily life; all claiming satisfaction at the expense of future mischief to himself and others. To countervail these misleading forces by means of a fixed rational character built up through meditation and philosophical teaching, was the grand purpose of the Stoic ethical creed. The emotional or appetitive self was to be starved or curbed, and retained only as an appendage to the rational self; an idea proclaimed before in general terms by Plato, but carried out into a system by the Stoics, though to a great extent also by the Epikureans.

The Stoic was taught to reflect how much that appears to be desirable, terror-striking, provocative, &c., is not really so, but is made to appear so by false and curable associations. And, while he thus discouraged those self-regarding emotions that placed him in hostility with others, he learnt to respect the self of another man as well as his own. Epictetus advises to deal mildly with a man that hurts us either by word or deed; and advises it upon the following very remarkable ground:—"Recollect that in what he says or does, he follows his own sense of propriety, not yours. He must do what appears to him right, not what appears to you: if he judges wrongly, it is he that is hurt, for he is the person deceived. Always repeat to yourself, in such a case: The man has acted on his own opinion."

The reason here given by Epictetus is an instance, memorable in ethical theory, of respect for individual dissenting conviction, even in an extreme case; and it must be taken in conjunction with his other doctrine, that damage thus done to us unjustly is really little or no damage, except so far as we ourselves give pungency to it by our irrational susceptibilities and associations. We see that the Stoic submerges, as much as he can, the pre-eminence of his own individual self, and contemplates himself from the point of view of another, as only one among many. But he does not erect the happiness of others into a direct object of his own positive

pursuit, beyond the reciprocities of family, citizenship, and common humanity. The Stoic theorists agreed with Epikurus in inculcating the reciprocities of Justice between all fellow-citizens; and they even went farther than he did, by extending the sphere of such duties beyond the limits of city, so as to comprehend all mankind. But as to the reciprocities of individual Friendship, Epikurus went beyond the Stoics in the amount of self-sacrifice and devotion that he enjoined for the benefit of a friend.

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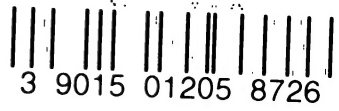
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